



Design and
Development
Division – Transmission



Electrical Supply to OWMC

Environmental Study Report

Report No. 87201

Dated November, 1987

Prepared by:

Ontario Hydro
for
Ontario Waste Management
Corporation

ELECTRICAL SUPPLY TO ONTARIO WASTE MANAGEMENT CORPORATION

TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	i
1.0 INTRODUCTION	1
2.0 DESCRIPTION OF THE PROPOSED TRANSMISSION FACILITIES	1
3.0 NEED FOR THE TRANSMISSION FACILITIES	2
4.0 SYSTEM OPTIONS	2
5.0 ROUTE SELECTION STUDY	2
5.1 The Study Process	2
5.2 Study Area	6
5.3 The Environment	8
5.4 Identification of Alternative Routes	9
5.5 Evaluation and Comparison of Alternative Routes	17
6.0 THE RECOMMENDATION	26
7.0 ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES	27
8.0 PUBLIC INVOLVEMENT AND NOTIFICATION	28
<u>APPENDICES</u>	31
Appendix 1 Environmental Inventory	
Appendix 2 Data Contacts	
Appendix 3 Data Sources and References	
Appendix 4 Summary of Potential Impacts, Mitigation Measures and Net Effects for Recommended Route BFGK	
Appendix 5 Glossary	

FIGURES

		<u>Page</u>
Figure 1	Recommended Route for Transmission Facilities	3
Figure 2	115 kV Wood Pole Transmission Line	5
Figure 3	Transmission Study Area	7
Figure 4	Environmental Constraint Map	11
Figure 5	Alternative Routes for Transmission Facilities	15
Figure 6	Comparison of Route Segments and Superior Route Alternatives	22

TABLES

Table 1	Summary of Environmental Ratings	13
Table 2	Quantitative Analysis of Route Segments (Links) for Transmission Facilities to Supply OWMC Facility at Preferred Site LF -9C	20
Table 3	Technical, Economic and Environmental Comparison of Superior Route Alternatives for Transmission Facilities	23
Table 4	External Agency and Public Route Preferences	25
Table 5	Summary of Comments on Alternative Routes	29

EXECUTIVE SUMMARY

This document describes the technical, economic and environmental studies carried out by Ontario Hydro in order to plan the new transmission facilities required to supply electrical energy to the proposed Ontario Waste Management Corporation (OWMC) Industrial Waste Treatment and Disposal Facility (Facility) in the Township of West Lincoln. The location of the study area considered for the transmission facilities is shown in Figure 1.

As a result of these studies, approval is being sought for the acquisition of property rights for, and the design, construction, operation and maintenance of, new transmission facilities to supply electrical energy to the OWMC facility. These facilities will include approximately 3.3 kilometres of a single circuit, 115 kV, wood pole transmission line; two line taps and manually-operated disconnect switches to energize and operate the new line; and, the raising of an existing 230 kV transmission line to provide electrical clearance for the egress of the new transmission line.

Three options were considered to supply electrical energy to the OWMC Facility: (i) supply the required electrical energy at 27.6 kV; (ii) supply the required electrical energy at 115 kV; and (iii) supply the required electrical energy at 230 kV. These voltage levels were selected for consideration since they were technically capable of supplying up to 10,000 kilowatts of electrical energy to the Facility.

The preferred option is to supply the required electrical energy at 115 kV. This option is less costly than the 230 kV supply alternative and is preferred for electric planning reasons over the most suitable 27.6 kV alternative.

The transmission facilities will be located in a rural environment where farming and rural residential development are the principal land uses. The terrain in the general area is level to gently undulating with numerous wet depressions and small intermittent streams. Large slough forests provide habitat for rare plants and for birds and mammals that are vulnerable to the effects of forest clearing and forest fragmentation.

The recommended route for the wood pole transmission line is located, for the most part, along the eastern edge of the road allowance of a paved township road, known as Silverdale Road, which forms the main north-south roadway through the study area (see Figure 2). To facilitate operation and maintenance of the line, overhang rights, generally 8 to 9 metres (25 to 30 feet) wide, will be required adjacent to the road allowance on all properties to accommodate the portion of the right of way that will extend beyond the road allowance.

The recommended route for the transmission line is environmentally preferred over other route alternatives since it has less overall effect on farm operations and agricultural resources; it avoids transmission line construction and maintenance in a provincially significant wetland area; it avoids special construction and maintenance practices to preserve specimens and habitat of a provincially rare shrub; and, it has less effect on forest resources.

The principal net environmental effect of constructing, operating, and maintaining the proposed transmission line along Silverdale Road will be some change in the visual surroundings of nearby residents. The degree of visual change along Silverdale Road will be reduced to the lowest practical level through the application of the following mitigation measures: removing and burying the existing rural electrical service along Silverdale Road; selecting pole locations that accommodate owner concerns wherever possible; planting replacement trees and shrubs elsewhere on affected properties; and, thickening existing tree screens, outside the right of way, at sensitive locations. The application of these mitigation measures, together with the design of the transmission facilities and the location of the recommended route, is expected to reduce the visual impact to a minor level at most locations.

The net environmental impact of constructing, operating, and maintaining the proposed transmission facilities on all other land use and environmental resources is expected to be minor to negligible following the application of standard mitigation and restoration measures.

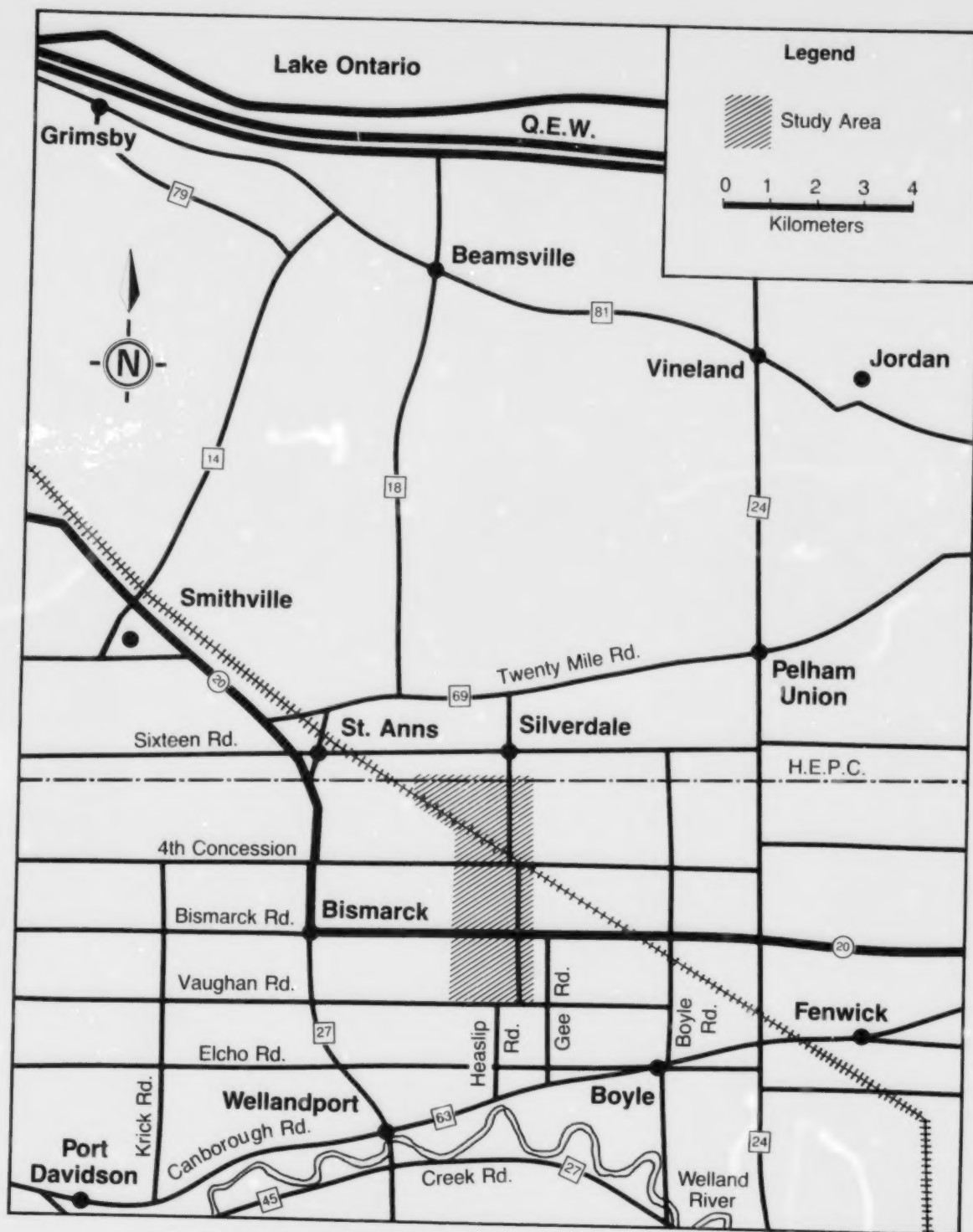


Figure 1
Transmission Study Area

RELATED ONTARIO HYDRO REPORTS

Biological Resource Assessment for Supply to OWMC Study Area, S.W. Hounsell, Land Use and Environmental Planning Department, Ontario Hydro, Toronto, June 2, 1987.

Environmental Guidelines for the Construction and Maintenance of Transmission Facilities, Revision 1, Ontario Hydro, March, 1986.

Prehistoric Archaeological Site Potential Study, Supply to Ontario Waste Management Corporation, J. Peters, Land Use and Environmental Planning Department, Ontario Hydro, Toronto, May 1987.

RELATED OWMC REPORTS

Site Selection Process Phase 3B: Selection of Candidate Sites, Site Selection -Volume 4: Map Portfolio, Ontario Waste Management Corporation, October 1984.

Site Selection Process Phase 4A: Selection of Preferred Site(s) - Land Use, Leon Kentridge Associates Ltd., Sub-Consultants: Marshall Macklin Monaghan Ltd.; Graydon Rodgers Appraisals Ltd., November 1985.

Site Selection Process Phase 4A: Selection of a Preferred Site(s) -Social Analysis, Prepared by Institute of Environmental Research Inc. November 1985.

Site Selection Process Phase 4A: Selection of A Preferred Site(s) -Social Analysis Appendices, Vol. 3 -Visual Impact Assessment, Prepared for The Institute of Environmental Research by E.D.A. Collaborative Inc., January 10, 1986.

A Review of Archaeological Resources As They Effect the Facilities Development Process -Ontario Waste Management Corporation, Submitted to Gartner Lee Associates by The Museum of Indian Archaeology (London), June 1982.

Site Selection Process Phase 3B: Selection of Candidate Sites -Heritage Resources, Submitted to Gartner Lee Associates Ltd. by The Museum of Indian Archaeology (London), November 1984.

Site Selection Process Phase 4A: Selection of a Preferred Site(s) -Archaeology, A Report Prepared for OWMC by The Museum of Indian Archaeology (London), November 1985.

Site Selection Process Phase 4A: Selection of a Preferred Site(s) -Social Analysis Appendices, Volume 2 -Heritage Assessment, Prepared by Historica Research Ltd., December 1985.

Site Selection Process-Phase 4A: Selection of a Preferred Site(s)-Agriculture, Prepared for OWMC by Ecologistics Ltd. and Deloitte, Haskins and Sells Associates, September 1985.

Site Selection Process-Phase 4A: Selection of a Preferred Site(s)-Agriculture Appendices, Prepared for OWMC by Ecologistics Ltd. and Deloitte, Haskins and Sells Associates, September 1985.

Site Selection Process-Phase 4A: Selection of Preferred Site(s): Agriculture Technical Map Portfolio, Prepared by Ecologistics Limited and Deloitte, Haskins and Sells Associates, September 1985.

Phase 4B: Agricultural Analysis Overview of Existing Conditions -Agriculture, (Draft) Prepared for OWMC by Ecologistics Ltd., February 1987.

Site Assessment Phase 4B: Geology, Hydrogeology and Geotechnics, Baseline Conditions Vol. 1, Prepared for OWMC by Gartner Lee Associates Ltd. December 1986.

Site Selection Process Phase 3B: Selection of Candidate Sites -Biology, Prepared for OWMC by Gartner Lee Associates Ltd., October 1984.

Site Selection Process Phase 4A: Selection of a Preferred Site(s)-Biology, Prepared for OWMC by Gartner Lee Associates Ltd., October 1985.

Site Selection Process Phase 4A: Technical Appendix LF-9C-Existing Biological Conditions, Prepared for OWMC by Gartner Lee Associates Ltd., September 1985.

Interim Data Summary Phase 4B: Biology, Prepared by OWMC by Gartner Lee Associates Ltd., August 1986.

Site Assessment, Phase 4B: Biology, Draft Report, Prepared for OWMC by Gartner Lee Limited, May 1987.

1.0 INTRODUCTION

The Ontario Waste Management Corporation (OWMC) is proposing to develop an Industrial Waste Treatment and Disposal Facility (Facility) in the Township of West Lincoln, at the site known as LF-9C. The operation of this Facility will require electrical energy which Ontario Hydro has agreed to supply at 115 kilovolts (kV).

The proposed site for the Facility is located approximately 3.3 kilometers (km) from the nearest source of 115 kV supply. It was necessary, therefore, to identify an acceptable location for a new transmission line to supply electrical energy to the Facility, and, for line taps and disconnect switches required to energize and operate the new line. The recommended location for these facilities is shown in Figure 1.

The purpose of this report is to document the study that was undertaken by Ontario Hydro to determine the type of transmission facilities that will be required to supply electrical energy to OWMC, and, to determine where the required facilities should be located.

The transmission facilities described in this report are part of the site services for the OWMC Facility. Consequently, this environmental report is in support of the OWMC Environmental Assessment.

Ontario Hydro will be responsible for planning, acquiring property rights for, constructing, operating, maintaining, and, if necessary, decommissioning the proposed transmission facilities.

2.0 DESCRIPTION OF THE PROPOSED TRANSMISSION FACILITIES

Approval is being sought for the acquisition of property rights for, and the design, construction, operation and maintenance of new transmission facilities to supply electrical energy to the proposed OWMC Industrial Waste Treatment and Disposal Facility at Preferred Site LF-9C. These facilities will include approximately 3.3 kilometres of a single circuit, 115 kV, wood pole transmission line; two line taps and manually-operated disconnect switches to energize and operate the new line; and, the raising of an existing 230 kV transmission line to provide electrical clearance for the egress of the new transmission line.

The recommended route for the new transmission line is shown in Figure 1. A typical 115 kV wood pole transmission line is shown in Figure 2. The poles will be approximately 24.4 metres to 27.4 metres (80 to 90 feet) in height and will be spaced approximately 122 metres to 152 metres (400 to 500 feet) apart. The line taps and manually-operated 115 kV disconnect switches will be installed near Node B (see Figure 1), within the existing Ontario Hydro right of way, at the junction with two existing 115 kV transmission lines. The extensions to existing towers required to raise the existing 230 kV transmission line at Silverdale Road will be installed within the existing Ontario Hydro right of way.

These transmission facilities will be constructed, maintained and, if necessary, decommissioned in accordance with Ontario Hydro's Environmental Guidelines for the Construction and Maintenance of Transmission Facilities which have been approved by the Ministry of the Environment.

3.0 NEED FOR THE TRANSMISSION FACILITIES

OWMC has identified site LF-9C as the preferred location for the proposed Industrial Waste Treatment and Disposal Facility. As a direct customer, OWMC has forecasted its initial power requirements to be 6,000 kilowatts (kW), and, has requested Ontario Hydro to make the power supply available by the in-service date of the Facility. The maximum possible peak load is expected to reach 10,000 kW.

The nearest source of an adequate power supply is located approximately 3.3 km from the proposed facility, and in order to provide electrical energy to OWMC, Ontario Hydro will have to construct a 115 kV single circuit transmission line and associated facilities.

4.0 SYSTEM OPTIONS

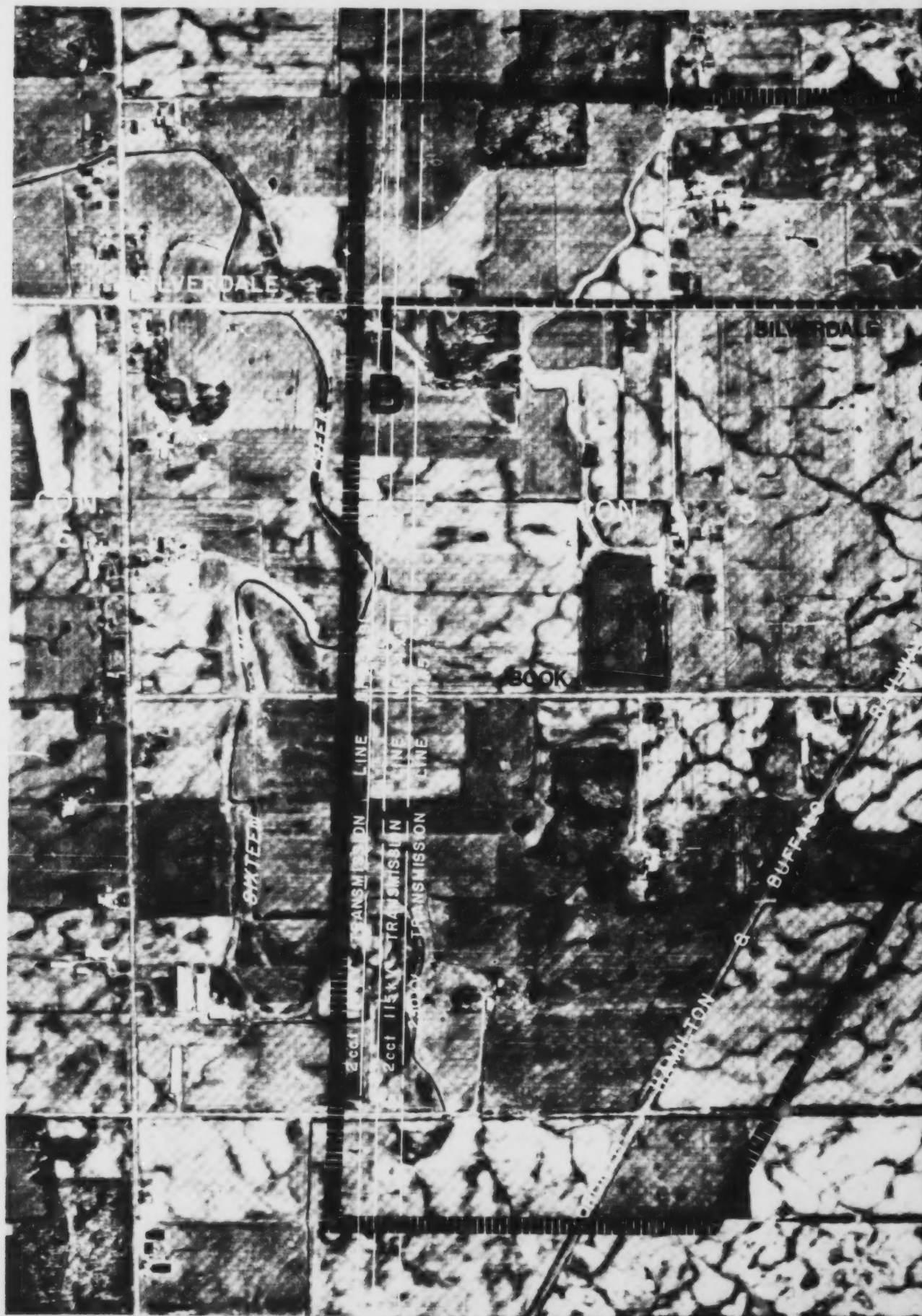
Three system options were considered to supply the proposed Facility with electrical energy:

- (a) Supply at 27.6 kV - There were three alternative ways to supply OWMC at 27.6 kV: (i) tap into the nearest 27.6 kV distribution line; (ii) construct a new 27.6 kV line from an expanded existing transformer station (TS); (iii) construct a new distribution station (DS) within the West Lincoln Area with a 27.6 kV connection to OWMC. The first alternative was not feasible since the available capacity was insufficient to meet OWMC's requirements. The second alternative was uneconomic, primarily due to projected 27.6 kV line losses. The third alternative was undesirable for electric planning reasons since OWMC's total load requirements would amount to about 33 percent of the capacity of the new DS. The supply at 27.6 kV option was therefore discarded.
- (b) Supply at 230 kV - There is an existing 230 kV line about 3.3 km north of the proposed facility that could provide the required electric power supply. However, the transmission and transformation necessary to meet OWMC's requirements would make the service costly from this source. As a result, this option was not pursued any further.
- (c) Supply at 115 kV - There are two 115 kV circuits within the same transmission corridor as the 230 kV line that are capable of providing alternative sources of supply. Since these sources offered a reliable supply, at a reasonable cost, the 115 kV supply option was selected as the preferred option.

5.0 ROUTE SELECTION STUDY

5.1 The Study Process

A study area was established at the outset of the study with reference to land use and environmental features, and, to apparent routing opportunities in the general vicinity of Preferred Site LF-9C. An inventory of land use and environmental resources that may be affected by transmission line disturbance was then compiled in consultation with provincial ministries and the local municipality and mapped at



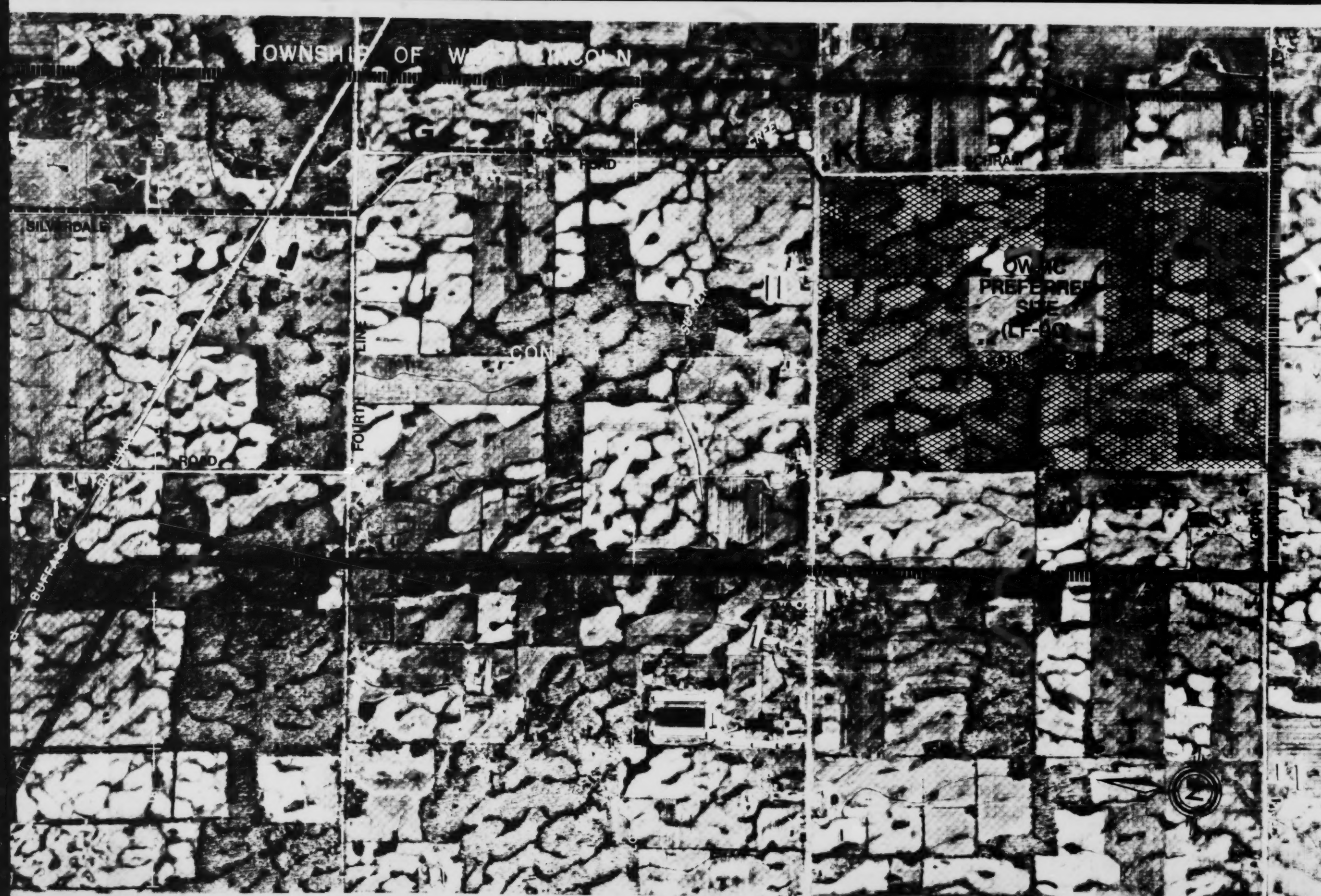


Figure 1
Recommended Route for Transmiss

- Legend**
-  Study Area Boundary
 -  OWMC Preferred Site
 -  Recommended Route
 -  Route Node

 Ontario Hydro Design and Development Division - Transmission	
Supply to Ontario Waste Manag Corporation (OWMC)	
Drawn by WD	Coordinating
Date October 15, 1987	Project Engi
Work Order 840-04352	Supervising P
Scale 1:10,000	Drawing No. RS243-LUEP-MX6-

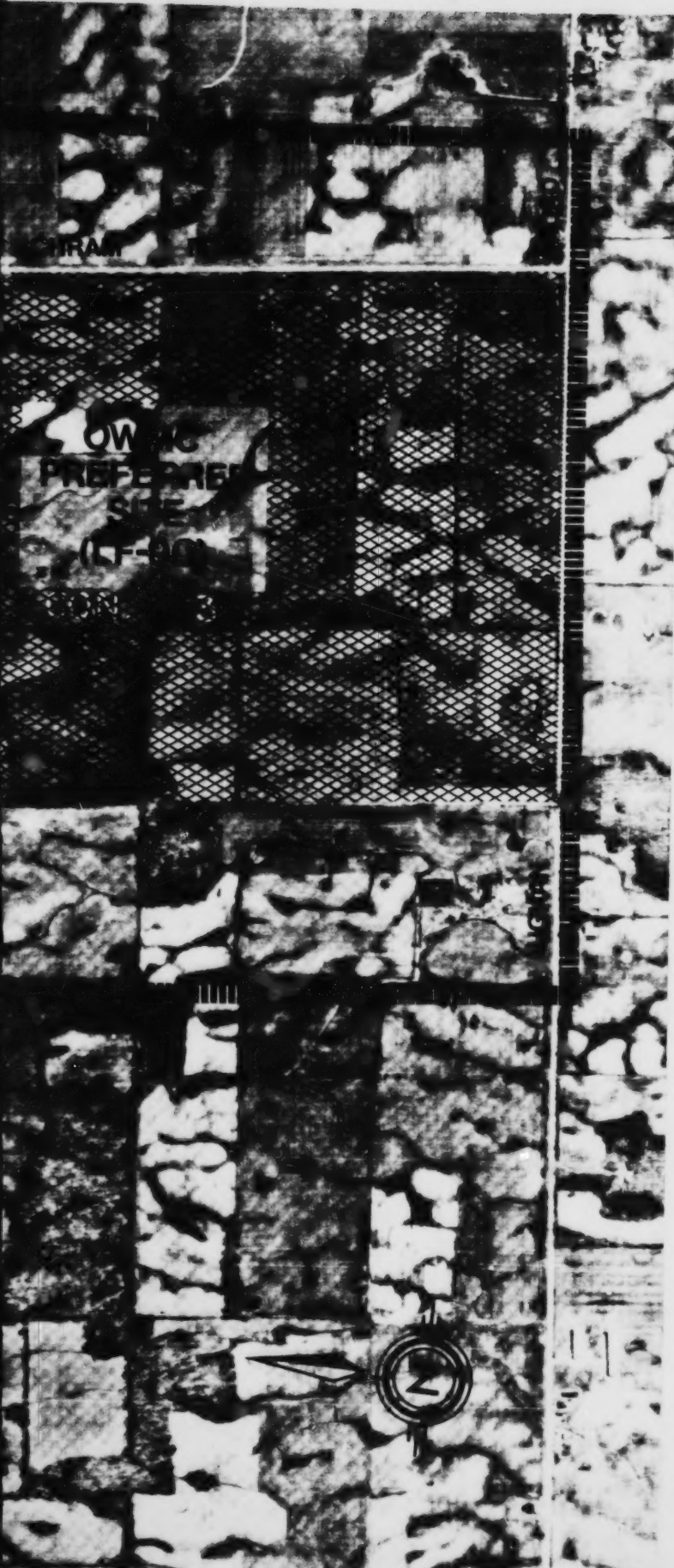


Figure 1

Recommended Route for Transmission Facilities

Legend

||||||| Study Area Boundary

XXXXX OWMC Preferred Site

--- Recommended Route

A Route Node



Ontario Hydro
Design and Development
Division - Transmission



Supply to Ontario Waste Management Corporation (OWMC)

Drawn by WD		Coordinating Planner W.B. Draper	
Date October 15, 1987		Project Engineer R.A. Alstrom	
Work Order 840-04352		Supervising Project Engineer G.M. Hoglund	
Scale 1:10,000	Drawing No. RS243-LUEP-MX6-0003	Rev. 0	Sheet 1 of 1



Figure 2
115 kV Wood Pole Transmission Line

1:10,000 scale. The relative importance and sensitivity of each resource was subsequently assessed and mapped in order to determine the relative degree of environmental constraint within the study area. This map was then used with aerial photography, engineering and other information to identify alternative routes for the proposed transmission line.

A summary of the land use and environmental resources on each route was prepared and forwarded to the appropriate provincial ministries and to the local and regional municipalities for review and comment. Potentially affected property owners on each route were also asked to comment and were provided with a map of the alternative routes and information regarding the type of facilities to be constructed. Two route segments were subsequently modified to respond to concerns received from the local municipality.

The modified alternative routes were examined in the field in order to: (i) assess the potential effects of transmission line construction and maintenance; (ii) identify appropriate mitigation measures; and, (iii) assess the relative degree of difficulty to construct and maintain the proposed facilities. The results of these analyses were then used in conjunction with technical and economic considerations and public route preferences to compare the various alternatives and select a preferred route.

Following the selection of the preferred route, the various levels of government and potentially affected property owners were notified and given a final opportunity for comment.

The results of this study process are presented in the following sections.

5.2 Study Area

The study area boundaries (see Figure 3) were established with reference to existing land use, township roads, lot lines, large forest stands, existing railway and transmission lines, and apparent routing opportunities.

The northern boundary parallels an existing Ontario Hydro right of way which contains the source of power for the new transmission facilities, whereas the eastern and western boundaries parallel township roads, the Toronto Hamilton and Buffalo railway line and side lot lines. The southern boundary parallels Vaughan Road which forms the southern perimeter of Preferred Site LF -9C. These boundaries maximize the opportunities for paralleling existing linear severances in the area and provide routing flexibility in the vicinity of the Ontario Hydro right of way and OWMC 's preferred site.



Scale: 1:25,000

Figure 3
Transmission Study Area

5.3 The Environment

5.3.1 Environmental Inventory

The environmental inventory prepared for this assessment is presented in Appendix 1. The inventory records the location of land use activities and environmental features that could be affected adversely by the construction, operation and maintenance of the proposed facilities. The inventory was compiled from published and unpublished reports and maps, air photo interpretation, roadside surveys, and, consultations with appropriate provincial ministries, the Township of West Lincoln, and the Ontario Waste Management Corporation. A list of study contacts is presented in Appendix 2. A list of data sources and references for each environmental factor is presented in Appendix 3.

5.3.2 Description the Existing Environment

The study area is located on a gently undulating clay plain and is characterized by low relief, imperfectly drained soils and rural land uses. Large slough forests dominate the central portion of the study area and give rise to numerous headwater streams that flow intermittently to the Welland River and to Sixteen Mile Creek. Farming is the principal land use activity with most operators employing a mixed or hay land use system. Commercial development is limited to a small auto wrecking yard on the Fourth Line and a garage on Highway 20. Rural residential development is concentrated along Silverdale Road which forms the main north-south roadway in the study area.

The earliest records of man's presence in the study area date from the Early Archaic Period (circa 8000 - 7500 BC) and include findspots from the Late Archaic and Early Woodland periods, and, chert flakes and chert core from an Indeterminate Camp. European settlement began about 1830 in the study area and by 1876 included a grocery store, hub manufacturer, blacksmith shop, school house, Methodist church, and most present day farmsteads. In 1895, the Silverdale railway station was constructed by the Toronto, Hamilton and Buffalo Railway to service its new line across the Niagara Peninsula. This station and a related complex of buildings (a store/post office, creamery, blacksmith shop) and trackage (passing track and stub rail spur) were gradually removed or destroyed beginning in the 1930s. Other developments during this century include the periodic removal of residential, commercial and institutional buildings; the construction of transmission lines in 1915 and 1929; road improvements along Silverdale Road; and, post-war rural residential development along township roads and Highway 20.

Most farm operations in the study area are livestock - based and grow hay, corn and small grains for feed. Dairy operations predominate with poultry, hog and beef operations also present. Farm fields are of moderate size with numerous wet depressions in-filled with marsh, thicket and swamp vegetation. Silt loam and silty clay loam soils predominate in the study area and have been rated as Class 2 and 3 capability for common field crops by the Ontario Institute of Pedology.

Forest cover within the study area is generally 50-80 years old and is more or less evenly divided between upland and lowland hardwood associations. Most woodlots ≥ 2 ha in size have been designated as high potential forest resource areas by the Township of West Lincoln in view of their potential to provide significant economic, social and environmental benefits to the municipality. Firewood and sawlogs are the principal forest products from these stands. A small Woodlands Improvement Act plantation has been established at the intersection of Silverdale Road and the Fourth Line. The stand is approximately 10 years old and generally of poor quality.

The woodlots in the central portion of the study area form part of a larger complex of hardwood slough forests that extend to the west and east of the study area. This forest system is the headwater for tributaries of Sixteen Mile Creek and the Welland River and provides habitat for provincially rare plants and for birds and mammals that are vulnerable to the effects of forest clearing and forest fragmentation. Portions of this forest within the study area have been classified by the Ontario Ministry of Natural Resources as Class II wetlands of provincial significance and by the Regional Municipality of Niagara as Environmentally Sensitive Areas of regional significance. The woodlots in the Book Road area also form part of a deer wintering area that extends to the west of the study area. Other biological resources in the study area include several intermittent streams with potential for fishery management.

Several stands of the provincially rare shrub, Southern Arrow-wood (Viburnum recognitum), have been discovered during recent field studies along the forested edge of Book Road and the Fourth Concession. This shrub is relatively common in the Regional Municipalities of Niagara and Haldimand Norfolk where it forms thickets along swamp margins, woodland sloughs and wet meadows.

Several rare animal species (Eastern Bluebird, Orchard Oriole, Lynx, Bobcat and Black Rat Snake) have been reported from the study area and general vicinity but their presence was not confirmed during recent field studies. Virginia Opossum have been sighted near the southern boundary of Site LF-9C and may occur elsewhere in the study area as well. This provincially rare but locally common marsupial prefers woody areas near streams but is often found in agricultural areas wherever food, woody cover and natural den sites are available.

There are no known locations of plant and animal species regulated under the Endangered Species Act, R.S.O. 1980, within the transmission study area.

5.4 Identification of Alternative Routes

5.4.1 Rating of Land Use and Environmental Situations

Table 1 presents a list of the land use and environmental situations within the study area that may be affected adversely by transmission line disturbance. The relative importance of avoiding each situation when locating the proposed facilities has been rated very high, high, moderate, low or very low according to the importance of the environmental situation and the degree to which it may be affected during construction, operation or maintenance of the proposed facilities.

The elements considered when rating each situation included the significance, quality, abundance and spatial distribution of the resource; and, the magnitude, spatial extent, duration, frequency and reversibility of potential changes to the environment or to land use. The ratings assume a worst case location for the proposed facilities in order to establish a common base for comparing potential changes to different environmental resources, and, to determine the degree of environmental constraint potentially present within the study area.

5.4.2 Environmental Constraint Map

The relative degree of environmental constraint within the study area is presented in Figure 4. Five levels of constraint are shown based on the importance to avoid ratings assigned to each environmental situation in Table 1. The level of constraint assigned to each polygon on the map is based on the rating of the most sensitive environmental situation present in that particular region of the study area.

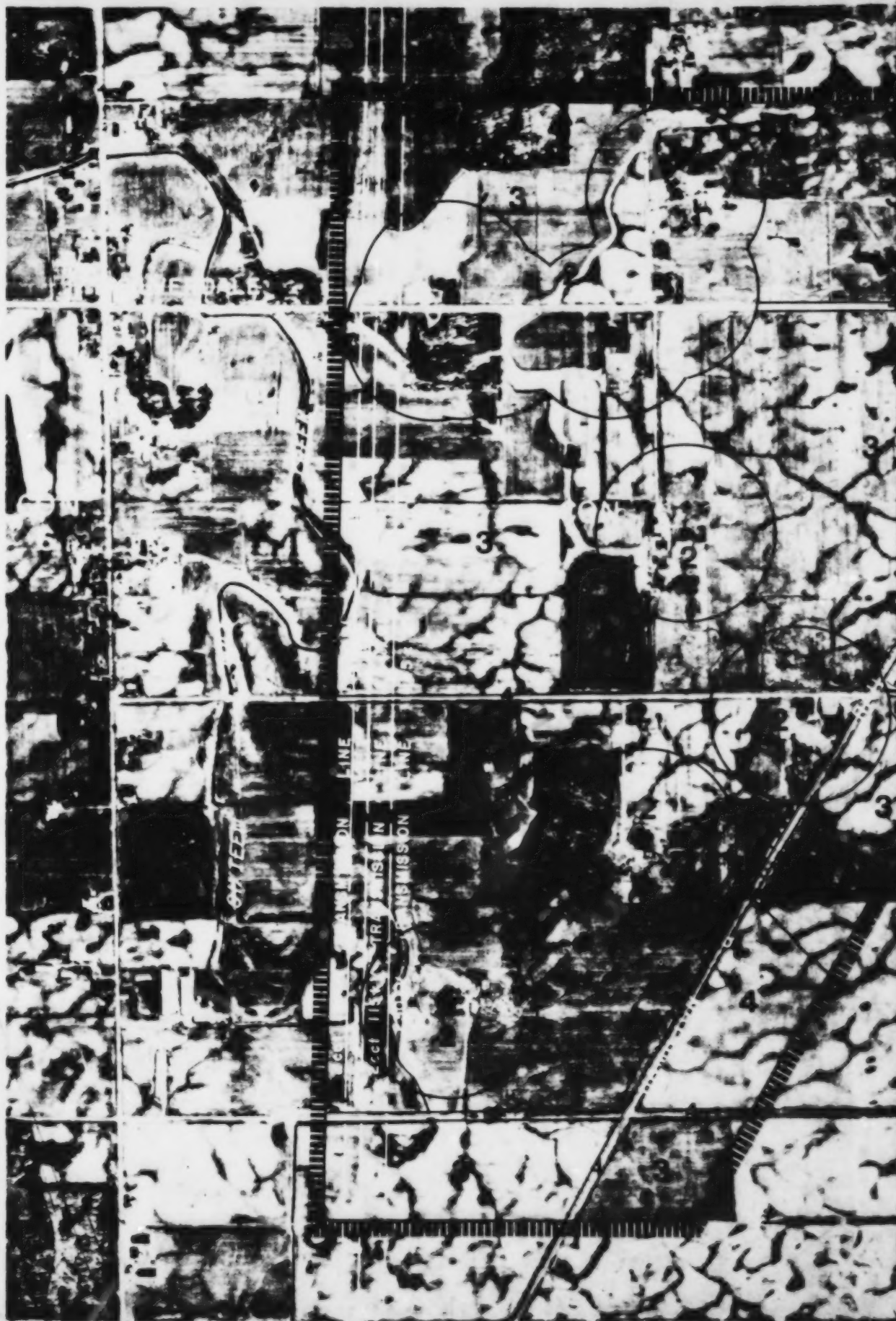
5.4.3 Identification of Alternative Routes

Alternative routes for the 115 kV wood pole transmission line required to supply electrical energy to the OWMC Facility are shown in Figure 5. Each route is composed of a number of segments (e.g., A-D, D-C, C-H, H-I) and extends from the existing Ontario Hydro right of way near Silverdale to the northern perimeter of Preferred Site LF-9C. The width of the dashed line depicting the location of each route segment is proportional to the width of the right of way required for the transmission facilities.

The route alternatives were identified in relation to land use and environmental concerns, property boundaries, existing and future linear severances, access for transmission line construction and maintenance, and cost. Route alignments which followed road allowances, property lines, and rural distribution lines were generally preferred since they provide greater opportunities to minimize disturbance to most land uses and environmental resources.

Route alternatives A-D-C-H-I and A-D-E-J were identified along Book Road x Fourth Line x Cross-Country x Preferred Site LF-9C since these alignments provided a direct route to the site, minimized disturbance to land uses and environmental resources in the general vicinity of the route, had few residences close to the right of way and no residences close to line tap and switch structures. These alignments also provided existing road access (for part of route) for transmission line construction and maintenance.

Route alternative B-F-G-K was identified along Silverdale Road since this alignment provided a direct route of the site, minimized disturbance to land uses and environmental resources in the general vicinity of the route, and provided excellent road access for transmission line construction and maintenance.



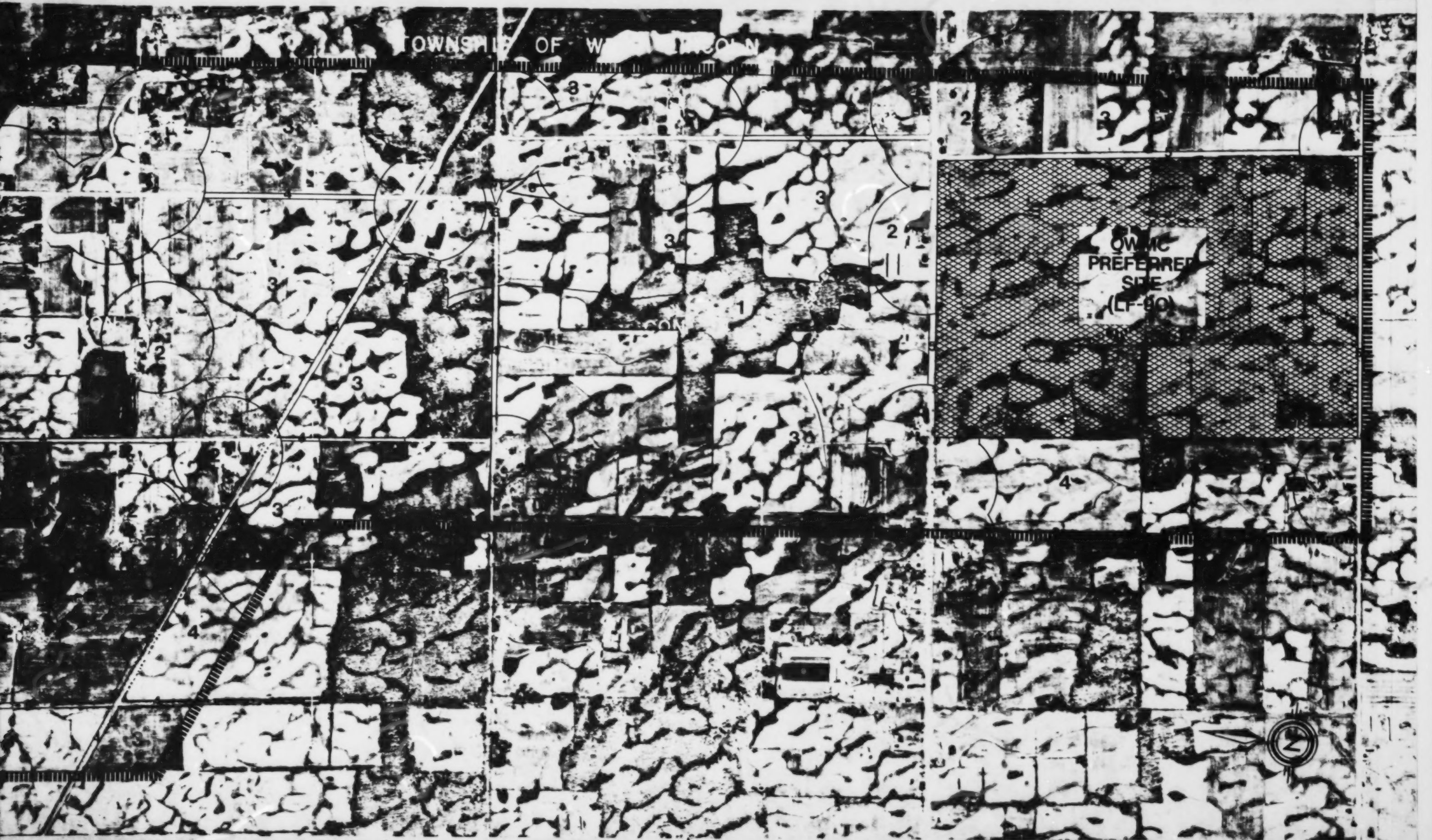


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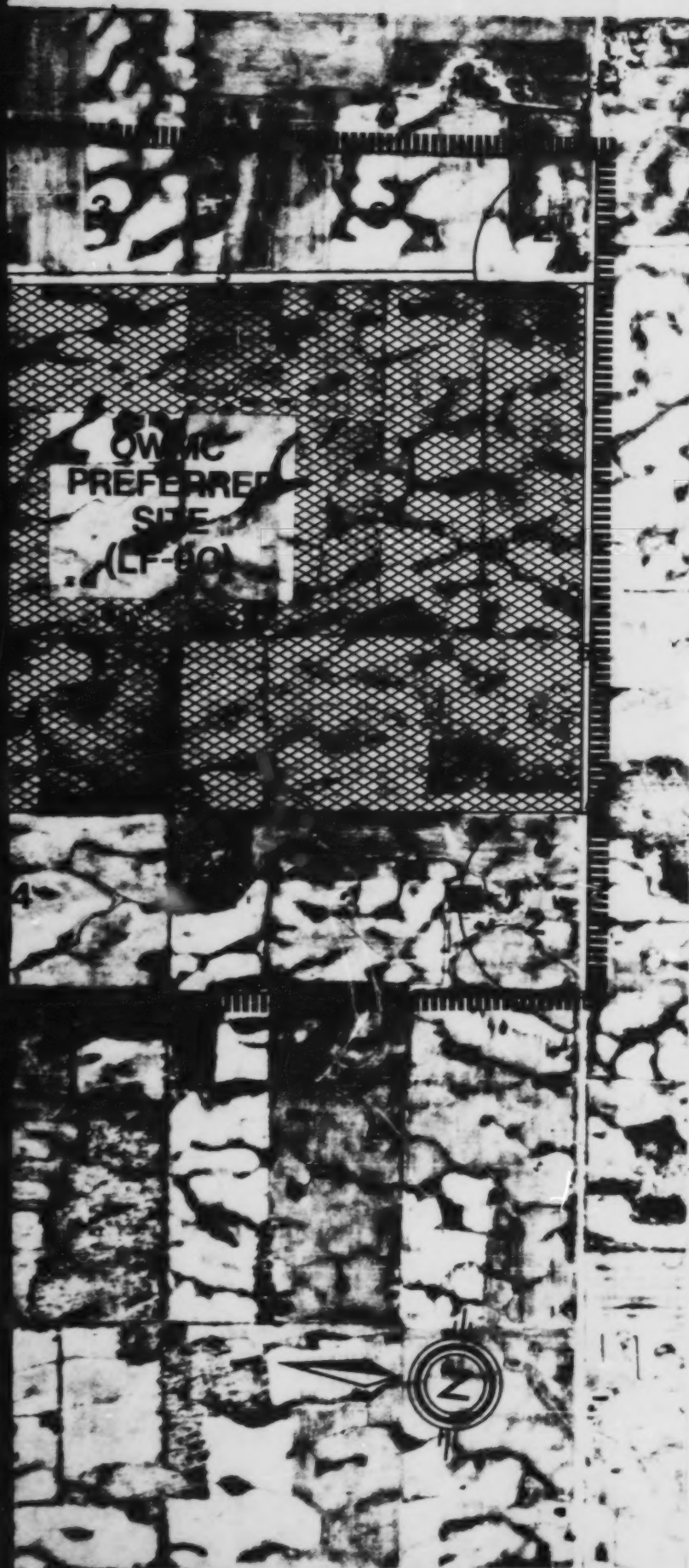


Figure 4

Environmental Constraint Map

Legend

- Very High Constraint
- 1. Very High Constraint
- 2. High Constraint
- 3. Moderate Constraint
- 4. Low Constraint
- 5. Very Low Constraint

REV	DATE	PARTICULARS	APPROVED
 Ontario Hydro Design and Development Division - Transmission			
Supply to Ontario Waste Management Corporation (OWMC)			
Drawn By WD/M ^C		Coordinating Planner W B Draper	
Date 26 June 1987		Project Engineer R A Alstrom	
Work Order 840 - 04352		Supervising Project Engineer G.M. Hoglund	
Scale 1:10,000	Drawing No RS243 LUEP-MX3-0002		Rev 0
			Sheet 1 of 1

Table 1

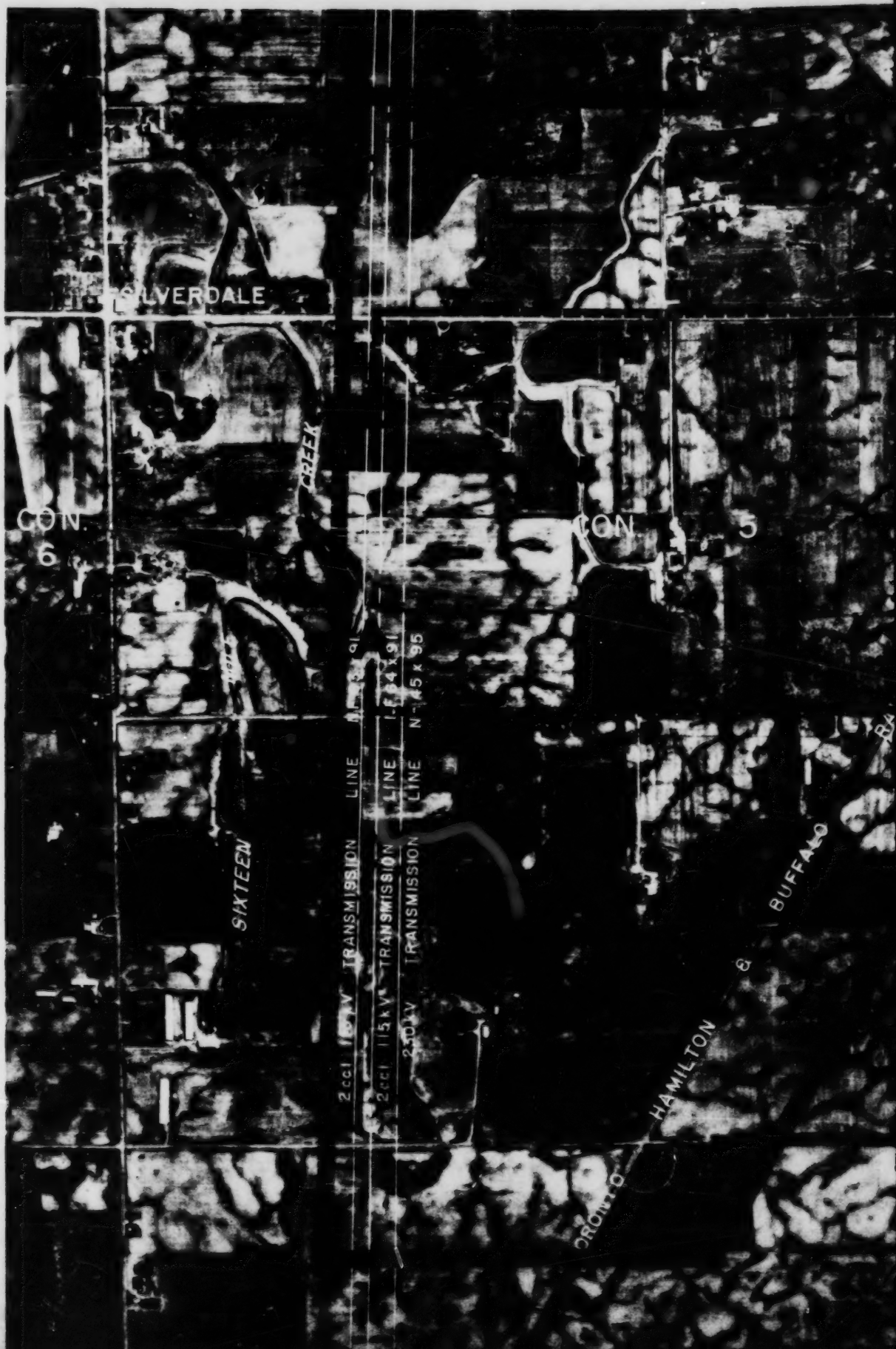
Summary of Environmental Rating

Factor	Environmental Situation	Relative Importance	Potential Change	Importance to Avoid
Human Settlement	Residence	High	Severe	Very High
	Commercial Building	High	Severe	Very High
	Industrial Building	High	Severe	Very High
	Farm Building	High	Severe	Very High
	Wrecking Yard	High	Moderate	Moderate
	Abandoned Residence	Very Low	Severe	Low
Visual Resources	Abandoned Farm Building	Very Low	Severe	Low
	180 m Radius from Residence	High	Major	High
Heritage Resources	Area of High Prehistoric Archaeological Potential	Moderate	Moderate	Moderate
	Site of Silverdale Station and Associated Buildings	Moderate	Moderate	Moderate
	Site of Residence Present 1876	Low	Moderate	Low
	Site of Residence Present 1907-1915	Low	Moderate	Low
	Residential or Commercial Building of Significant Heritage Interest	Low	Severe	Moderate
	Residential Building of Heritage Interest	Low	Severe	Moderate
	Residential Building of Minimal Heritage Interest	Very Low	Severe	Low
	Residential Building of Potential Heritage Interest	Low	Severe	Moderate
	Heritage Landscapes	Low	Major	Moderate
	Rural Landscape 1A	Low	Moderate	Low
	Rural Landscape 1B	Low	Major	Moderate

Table 1 (Cont'd)

Summary of Environmental Rating

Factor	Environmental Situation	Relative Importance	Potential Change	Importance to Avoid
Heritage Resources (Cont'd)	Rural Landscape IC	Low	Moderate	Low
	Rural Landscape ID	Low	Moderate	Low
	Rural Residential Landscape IE	Low	Major	Moderate
	Rural Residential Landscape IF	Low	Major	Moderate
	Transitional Landscape 2A	Very Low	Minor	Very Low
Agricultural Resources	Transitional Landscape 2B	Very Low	Minor	Very Low
	Class 2, 3 Capability, Intensive Land Use	High	Moderate	Moderate
	Class 2, 3 Capability, Moderately Intensive Land Use	High	Moderate	Moderate
	Class 2, 3 Capability, Low Intensity Land Use	High	Moderate	Moderate
	Class 2, 3 Capability, Idle Land Use Apiary	High High	Minor Moderate	Low Moderate
Forest Resources	High Potential Forest Resource Area	Moderate	Severe	High
	Other Private Woodlots ≥ 2 ha	Moderate	Severe	High
	Woodlands Improvement Act Plantation	Very Low	Severe	Low
Biological Resources	Rare Species: Black Gum	Moderate	Severe	High
	Rare Species: Canada Plum	Moderate	Severe	High
	Rare Species: Southern Arrow-wood	Moderate	Moderate	Moderate
	Class II Wetlands	High	Severe	Very High
	Environmentally Sensitive Area	Moderate	Severe	High
	Deer Wintering Area	Moderate	Minor	Low
	Intermittent Stream with Potential for Fishery Management	Low	Moderate	Low



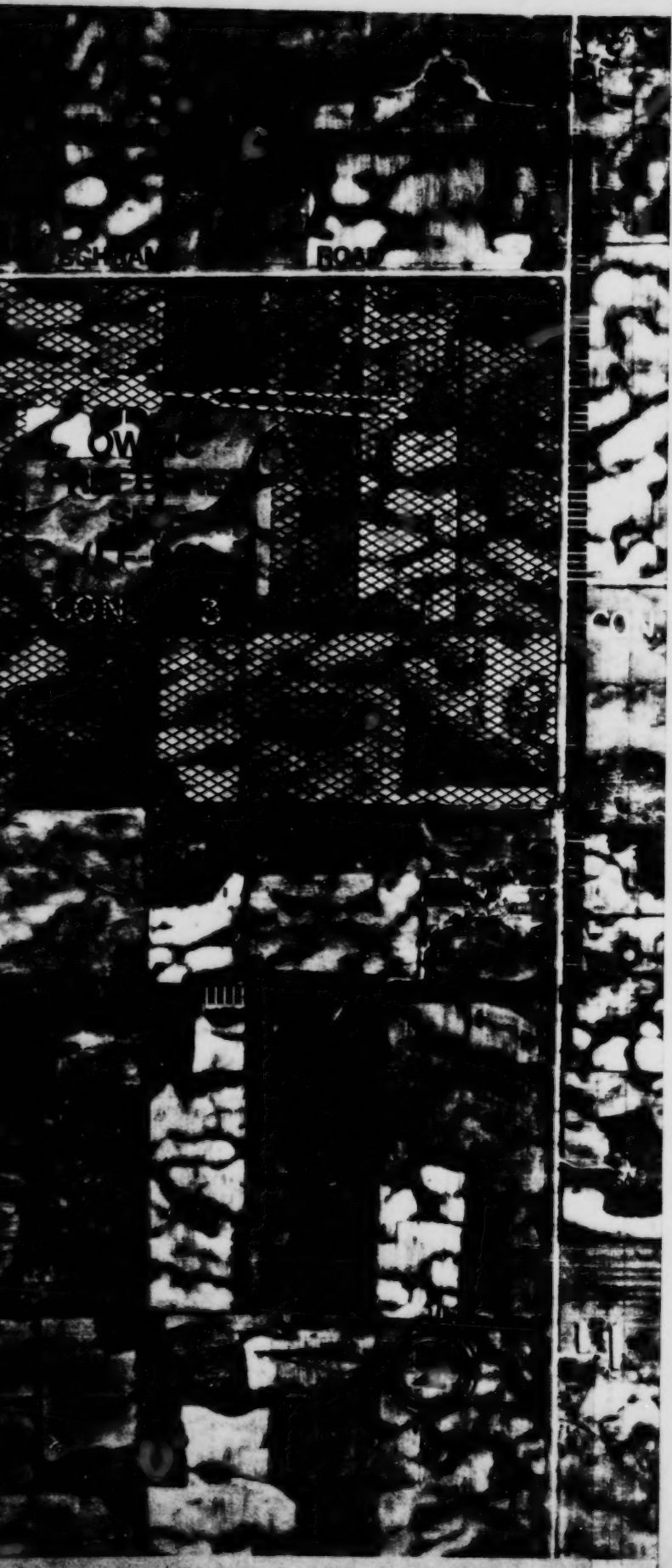


Figure 5

Alternative Routes For Transmission Facilities

Legend

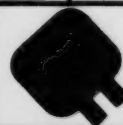
||||||| Study Area Boundary

XXXXXX OWMC Preferred Site

----- Alternative Routes

A Route Nodes

2	1987/09/23	Link EF realigned near Silverdale Road to meet FG	RAA
1	1987/09/08	Link FG realigned along Silverdale Road Linetaps consolidated at Nodes A and B	RAA
REV	DATE	PARTICULARS	APPROVED



Ontario Hydro
Design and Development
Division - Transmission



Supply to Ontario Waste Management Corporation (OWMC)

Drawn By	WD/MC	Coordinating Planner	W.B. Draper
Date	27 May, 1987	Project Engineer	R.A. Alstrom
Work Order	840 - 04352	Supervising Project Engineer	G.M. Hoglund
Scale	1:10,000	Drawing No	RS243 LUEP-MX3-0001
		Rev	2
		Sheet	1 of 1

Route alternatives B-F-E-J and B-F-E-D-C-H-I were identified along Silverdale Road x Fourth Line x Cross-Country x Preferred Site LF-9C since these alignments had fewer residences close to the right of way than other Silverdale Road alternatives, minimized disturbance to land uses and environmental resources in the general vicinity of the route, and provided some road access for transmission line construction and maintenance.

Route alternative A-D-E-F-G-K was identified along Book Road x Fourth Line x Silverdale Road x Preferred Site LF-9C since this alignment had no residences close to line tap and switch structures, had fewer residences close to the right of way than Silverdale alternative B-F-G-K, minimized disturbance to land uses and environmental resources in the general vicinity of the route, and provided excellent road access for transmission line construction and maintenance.

The line tap and switch structures required to energize and operate the new transmission line will be located on the existing Ontario Hydro right of way at either Node A or Node B in view of the technical and land requirements associated with these structures.

Route segments A-D, D-C, D-E, E-F (in part), B-F, F-G (in part), and G-K (in part) are located along township road allowances, whereas segments C-H (in part) and E-J are located along property lines. Route segments E-F (in part) and H-I are located along existing rural distribution lines.

5.5 Evaluation and Comparison of Alternative Routes

The alternative routes presented in Figure 5 were evaluated and compared in a systematic manner. The route segments comprising each alternative route were first examined to determine the degree to which the environmental situations present in each segment would be affected by the creation of an 18.3 metre (60 foot) right of way. A summary of potential effects was then prepared and transmitted to the provincial ministries and the local municipality for review and comment. Potentially affected property owners on each route segment were also asked for comments and were provided with information regarding the location of the route alternatives and the type of facilities to be constructed.

The route segments were then examined in the field in order to: (i) assess the potential effects of transmission line construction and maintenance on each environmental situation present; (ii) identify appropriate mitigation measures to reduce the magnitude or duration of predicted effects; and, (iii) assess the relative degree of difficulty to construct and maintain the proposed facilities. The results of these analyses, and the comments received from external agencies and potentially affected property owners, were subsequently used to revise the location of certain route segments, and, to select the superior segments for a final comparison and selection of a preferred route.

The results of this evaluation, consultation, comparison and selection process are summarized in the following subsections, in Chapters 7 and 8, and in Appendix 4.

5.5.1 Technical and Environmental Analysis of Route Segments

The degree to which the environmental situations present in each route segment may be affected by the creation of an 18.3 m (60 foot) right of way is presented in Table 2. The geographic locations of the route segments (links) specified in Table 2 are shown in Figure 5. Definitions for the environmental situations listed in Table 2 may be found in the Glossary (see Appendix 5).

5.5.2 Comparison of Route Segments and Selection of Superior Route Alternatives

The route segments that were compared for the purpose of selecting two (or more) superior route alternatives are presented in Figure 6. The intent of the first comparison (Link ADEF versus Link BF) was to select the best route segment from the source of supply to Node F; the intent of the second comparison (Link DCHI versus Link DEJ) was to select the best route segment to the OWMC Facility from Node D; and, the intent of the final comparison (Link AD versus Link BFED) was to select the best route segment from the source of supply to Node D.

The results of these comparisons revealed that Links EJ and DEF were environmentally and technically inferior to the other route segments and did not warrant further consideration. Link EJ severed a recently consolidated farm property and potentially could interfere with future farm operations if adjoining farm fields were consolidated. Link EJ also severed a large woodlot and could affect its potential to support and produce forest interior animal species. Link DEF entailed transmission line clearing, construction and maintenance in a provincially significant wetland area, and, required special techniques to preserve the habitat and specimens of a provincially rare shrub. Routes with Link DEF were also substantially longer than other routes while routes with Link EJ required more than one kilometre of new road access to construct and maintain the transmission line.

Two superior route alternatives were subsequently created from the remaining route segments: Route ADCHI (Book Road x Fourth Line x Cross-Country x Preferred Site LF -9C), and, Route BFGK (Silverdale Road x Preferred Site LF -9C).

5.5.3 Selection of a Preferred Route

The selection of a preferred route for the proposed facilities was made with reference to the technical, economic and environmental considerations presented in Table 3; the route preferences summarized in Table 4; an assessment of the mitigation opportunities and net effects associated with each superior route alternative; and, an assessment of the relative degree of difficulty to construct and maintain the proposed transmission facilities.

Route BFGK along Silverdale Road was selected as the preferred route for the 115 kV transmission facilities for the following reasons:

- (1) It is easier to construct and maintain (located adjacent to an all-weather road; no access roads required to construct and maintain transmission line; minimum access road construction to service switching facilities; very little right of way clearing required to provide and maintain electrical clearances; construction of tower footings in swamp conditions not required);
- (2) It has less overall effect on agricultural resources (farm operations and crops will not be disturbed during transmission line construction and maintenance; land removed from production for tap and switch structures is of lower quality (Class 3 versus Class 2 soil capability for agriculture));
- (3) It avoids transmission line construction and maintenance in a provincially significant wetland area;
- (4) It avoids special construction and maintenance practices to preserve specimens and habitat of the provincially rare shrub Southern Arrow-wood (Viburnum recognitum);
- (5) It has less effect on forest resources (minor temporary effects on a poor quality plantation versus removal of 0.6 ha of immature hardwoods on productive sites).

The advantages for locating the transmission line along Silverdale Road outweigh its principal disadvantage which relates to the visibility of the transmission facilities from 15 residences located within 180 m of the transmission line, line taps and disconnect switches.

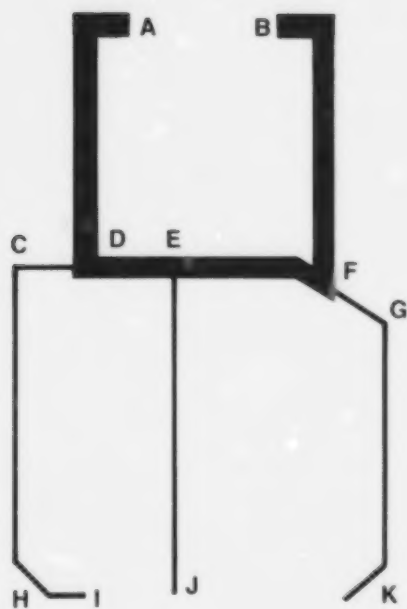
There are minor differences between the preferred route and alternative route ADCHI (Book Road) with respect to the relative amount of the following environmental situations present on each route: the number of properties directly affected; the area of land with high prehistoric archaeological potential crossed; the number of archaeological sites crossed; and, the number of intermittent streams with fishery management potential crossed (see Table 3). These differences, in view of the minor nature of the predicted net effects on the respective resources, were considered not to favour one route over another.

Table 2: Quantitative Analysis of Route Segments (Links) for Transmission Facilities to Supply OWMC Facility at Preferred Site LF-9C

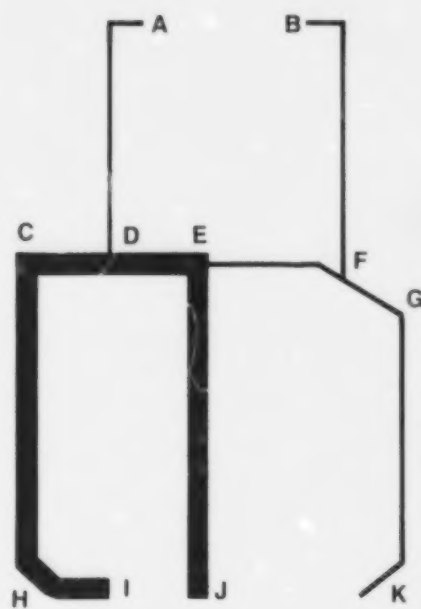
Factor	Environmental Situation	Link A-D	Link B-F	Link D-C	Link D-E	Link E-F	Link F-G	Link C-H-I	Link E-J	Link G-K
Technical	Length (m)	1,750	1,720	260	210	590	310	1,670	1,430	1,290
	Length of ROW on Road Allowance (m)	1,750	1,720	0	0	0	260	60	50	1,240
	Length of ROW off Road Allowance (m)	0	0	260	210	590	50	1,610	1,380	50
	Length of ROW Diagonal to Property Line (m)	0	0	0	0	60	50	110	0	50
	Land Area For Line Tap and Switch (ha)	0.6	0.6	0	0	0	0	0	0	0
	Access Road (m)	335	360	260	210	590	0	1400	1400	0
Human Settlement	Residence: # residences adjacent to ROW	0	2	0	0	0	0	2	0	2
	Automobile Wrecking Yard: length of property crossed (m)	0	0	0	0	0	0	100	0	0
	Number Properties Directly Affected (#)	4	7	2	2	4	5	11	6	7
Visual Resources	180 metre Radius From Residence: # residences affected	2	7	1	1	0	2	6	0	10
Heritage Resources	Area of High Prehistoric Archaeological Potential: # hectares crossed	1.4	2	0	0.3	0.5	0.2	1.1	2.2	1.3
	Historic Archaeological Sites: # sites crossed	1	2	0	0	0	0	0	0	1
	Buildings of Heritage Interest: # buildings adjacent/opposite	1	1	1	0	0	0	1	0	3
	Heritage Farm Landscapes: # landscapes crossed	0	0	0	0	0	0	0	0	0
	Rural Landscapes: # landscapes crossed	2	2	1	1	2	1	1	2	1
	total length of landscape crossed (m)	1,750	1,070	260	210	590	310	710	710	210
	Rural Residential Landscapes: # landscapes crossed	0	1	0	0	0	1	0	0	1
	total length of landscape crossed (m)	0	650	0	0	0	30	0	0	450
	Transitional Landscapes: # landscapes crossed	0	0	0	0	0	0	2	2	2
	total length of landscape crossed (m)	0	0	0	0	0	0	930	700	710

Table 2: Quantitative Analysis of Route Segments (Links) for Transmission Facilities to Supply OWMC Facility at Preferred Site LF-9C (Cont'd)

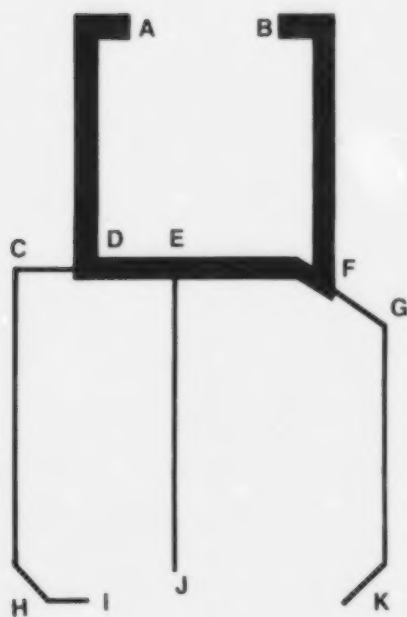
Factor	Environmental Situation	Link A-D	Link B-F	Link D-C	Link D-E	Link E-F	Link F-G	Link C-H-I	Link E-J	Link G-K
Agricultural Resources	Class 2, 3 Capability, Intensive Land Use:									
	length of ROW adjacent to property line (m)	1,250	490	120	0	0	0	1,265	1,240	0
	length of ROW diagonal to property line (m)	0	0	0	0	0	0	70	0	50
	# hectares removed from production (tap, switch)	0.6	0.6	0	0	0	0	0	0	0
	Class 2, 3 Capability, Moderate Intensity Land Use:									
	length of ROW adjacent to property line (m)	420	810	0	0	0	0	520	450	950
	length of ROW diagonal to property line (m)	0	0	0	0	0	0	0	0	0
	Class 2, 3 Capability, Low Intensity Land Use:									
	length of ROW adjacent to property line (m)	0	0	0	0	0	0	0	0	180
	length of ROW diagonal to property line (m)	0	0	0	0	0	0	0	0	0
Forest Resources	Class 2, 3 Capability, Idle Land Use:									
	length of ROW adjacent to property line (m)	0	0	0	0	300	180	200	0	0
	length of ROW diagonal to property line (m)	0	0	0	0	0	30	0	0	0
	Apiary:									
	# apiaries potentially affected	0	0	0	0	1	0	0	0	0
	High Potential Forest Resources:									
	# hectares cleared	0.2	0	0	0.3	0.2	0	0	0.5	0
	Woodlands Improvement Act Plantation:									
	# hectares cleared	0	0.1	0	0	0	0	0	0	0
	Other Private Forest Stands ≤ 2 ha:									
Biological Resources	# hectares cleared	0	0	0.1	0	0	0	0.3	0	0
	Rare Plant Species:									
	# species affected	1	0	1	1	1	0	0	0	0
	Class II Wetlands:									
	length of ROW in forest edge location (m)	280	0	130	200	210	0	220	350	0
	Environmentally Sensitive Area:									
	# areas crossed	1	0	1	1	1	0	1	0	0
	length of ROW in forest edge location (m)	280	0	130	200	210	0	260	0	0
	Deer Wintering Area:									
	length of ROW in forest edge location (m)	280	0	250	200	210	0	0	0	0
Biological Resources	Intermittent Streams with Fishery Management Potential:									
	# stream crossings	1	1	0	0	0	0	0	1	1



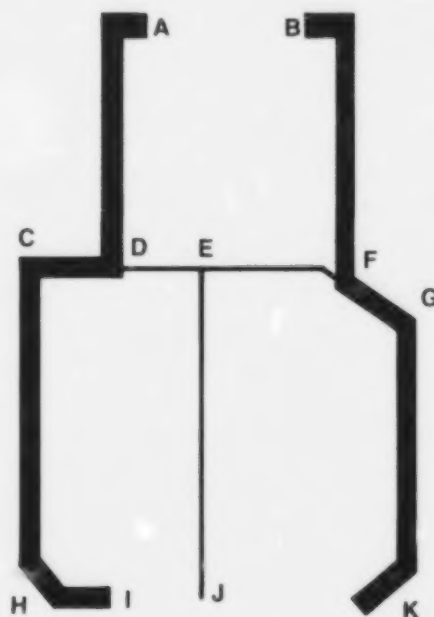
1. Link ADEF vs Link BF



2. Link DCHI vs Link DEJ



3. Link AD vs Link BFED



4. Route ADCHI vs Route BFGK

Figure 6
Comparison of Route Segments and Superior Route Alternatives

Table 3: Technical, Economic and Environmental Comparison
of Superior Route Alternatives for Transmission Facilities

Factor	Environmental Situation	Route ADCHI	Route BFGK
Technical	Length (km)	3.7	3.3
	Length of ROW on Road Allowance (km)	1.8	3.3
	Length of ROW off Road Allowance (km)	1.9	0.1
	Length of ROW Diagonal to Property Line (km)	0.1	0.1
	Land Area For Line Tap and Switch (ha)	0.6	0.6
	Road Access (km)	2.0	0.4
Economic	Cost (\$ million)	1.5	1.5
Human Settlement	Residence:		
	# residences adjacent to ROW	2	4
	Automobile Wrecking Yard:		
	length of property crossed (m)	100	0
Visual Resources	Number Properties Directly Affected (#)	15	16
	180 metre Radius From Residence:		
	# residences affected	8	15
Heritage Resources	Area of High Prehistoric Archaeological Potential:		
	# hectares crossed	2.5	3.5
	Historic Archaeological Sites:		
	# sites crossed	1	3
	Buildings of Heritage Interest:		
	# buildings adjacent/opposite	4	2
	Heritage Farm Landscapes		
	# landscapes crossed	0	0
	Rural Landscapes:		
	# landscapes crossed	3	2
	total length of landscape crossed (km)	2.7	1.6
	Rural Residential Landscapes:		
	# landscapes crossed	0	2
	total length of landscape crossed (km)	0	1.1
	Transitional Landscapes:		
	# landscapes crossed	2	2
	total length of landscape crossed (km)	0.9	0.7

Table 3: Technical, Economic and Environmental Comparison
of Superior Route Alternatives for Transmission Facilities (Cont'd)

Factor	Environmental Situation	Route ADCHI	Route BFGK
Agricultural Resources	Class 2, 3 Capability, Intensive Land Use:		
	length of ROW adjacent to property line (km)	2.6	0.5
	length of ROW diagonal to property line (m)	0.1	0.1
	# hectares removed from production (tap, switch)	0.6	0.6
	Class 2, 3 Capability, Moderate Intensity Land Use:		
	length of ROW adjacent to property line (km)	0.9	1.8
	length of ROW diagonal to property line (km)	0	0
	Class 2, 3 Capability, Low Intensity Land Use:		
	length of ROW adjacent to property line (km)	0	0.2
	length of ROW diagonal to property line (km)	0	0
	Class 2, 3 Capability, Idle Land Use:		
	length of ROW adjacent to property line (km)	0.2	0.2
Forest Resources	length of ROW diagonal to property line (km)	0	0.1
	Apiary:		
	# apiaries potentially affected	0	0
	High Potential Forest Resources:		
	# hectares cleared	0.2	0
	Woodlands Improvement Act Plantation:		
	# hectares cleared	0	0.1
	Other Private Forest Stands $\leq$ 2 ha:		
	# hectares cleared	0.4	0
Biological Resources	Rare Plant Species:		
	# species affected	1	0
	Class II Wetlands:		
	length of ROW in forest edge location (km)	0.6	0
	Environmentally Sensitive Area:		
	# areas crossed	1	0
	length of ROW in forest edge location (km)	0.6	0
	Deer Wintering Area:		
	length of ROW in forest edge location (km)	0.5	0
	Intermittent Streams with Fishery Management Potential:		
	# stream crossings	1	2

Table 4

External Agency and Public Route Preferences

<u>Public/Agency</u>	<u>Route Preference</u>
Ontario Ministry of Natural Resources	Silverdale Road (BFGK)
Ontario Ministry of Agriculture and Food	*
Ontario Ministry of Culture and Communications	No Preference
Ontario Ministry of Transportation	No Preference
Township of West Lincoln	*
Mr. W. Lockey Part Lot 13, Concession V Township of West Lincoln	Book Road (ADCHI, ADEJ)
Mr. E. Weiss Part Lot 12, Concession V Township of West Lincoln	Book Road (ADCHI, ADEJ)
Mr. R.L. Bradley Part Lot 13, Concession V Township of West Lincoln	Opposed to All Routes
Mr. C. Huizinga Part Lot 17, Concession IV Township of West Lincoln	No Preference
Mrs. E. Kszan Part Lot 18, Concession IV Township of West Lincoln	No Preference

* Official response not yet received.

6.0 THE RECOMMENDATION

It is recommended that approval be granted for Route BFGK (Silverdale Road x Preferred Site LF-9C), as shown in Figure 1, for the acquisition of property rights for, and the design, construction, operation and maintenance of, the proposed transmission facilities to supply electrical energy to the OWMC Waste Treatment and Disposal Facility at Preferred Site LF-9C. A typical 115 kV wood pole transmission line is shown in Figure 2.

The transmission line will commence at the junction with two existing 115 kV transmission lines, on the west side of Silverdale Road, about 3.3 km north of the proposed OWMC Facility. Two manually-operated 115 kV disconnect switches will be installed at the junction to provide selective switching for the new 115 kV supply from either circuit. Approximately 0.6 ha of land will be required to accommodate these facilities.

Leaving the switch structures on the existing right of way at Node B, the line will cross over to the east side of Silverdale Road, and then continue within the road allowance in a southerly direction to Node F at the south-west corner of Silverdale Road and Fourth Line. From Node F, the line will cross over to the east side of Silverdale Road and proceed in a southeasterly direction to Node G. The line will then continue in a southerly direction, within the road allowance, to a point near Node K where the line will cross Silverdale Road in a southwesterly direction to Node K at the south-west corner of Highway 20 and Schram Road. From Node K, the line will connect to the OWMC transformer station at Preferred Site LF-9C.

To facilitate operation and maintenance of the transmission line, overhang rights, generally 8 to 9 metres (25 to 30 feet) wide, will be required adjacent to the road allowance, on all properties, to accommodate the portion of the right of way that will extend beyond the road allowance.

The transmission facilities will be constructed and maintained in accordance with Ontario Hydro's Environmental Guidelines for the Construction and Maintenance of Transmission Facilities which have been approved by the Ministry of the Environment.

Route BFGK, along Silverdale Road, has been selected as the recommended route for the proposed transmission facilities in view of its lower impact on most environmental resources. However, some changes in the environment are expected to occur along the recommended route. Ontario Hydro will endeavour to minimize the magnitude and duration of these changes through the application of appropriate mitigation and restoration measures in accordance with its Environmental Guidelines for the Construction and Maintenance of Transmission Facilities which have been approved by the Ontario Ministry of the Environment.

The principal net environmental effect of constructing a 115 kV wood pole transmission line along the east side of the Silverdale Road, and associated line taps and disconnect switches at Node B, will be a change in the visual surroundings of nearby residents. The degree of visual change experienced by individual residents is expected to vary from minor to moderate depending upon the orientation, content and extent of their principal views; the location and proximity of the wood poles; and the degree of right of way clearing required on individual properties.

The magnitude of visual change along the recommended route has been significantly reduced through the choice of tower design and the selection of a route alignment which optimizes local visual concerns. Ontario Hydro will endeavour to further reduce the degree of visual change by removing and burying the existing rural electrical service along Silverdale Road; by selecting pole locations that accommodate owner concerns wherever possible; by planting replacement trees and shrubs elsewhere on affected properties; and by thickening existing tree screens, outside the right of way, at sensitive locations. The application of these measures, together with the design of the transmission facilities and the recommended route alignment, is expected to reduce the net visual effect to an acceptable level.

The net impact of constructing, operating and maintaining the proposed facilities on all other land uses and environmental resources along the recommended route is expected to be minor to negligible, following the application of standard mitigation and restoration measures.

The recommended route is compatible with provincial policy statements issued under Section 3 of the Planning Act, and with the established land use policies and by-laws of the municipality, by virtue of its location, the minor nature of its potential net effects, and the planning process by which it was selected.

A summary of the potential impacts, mitigation measures and net effects for recommended route BFGK is presented in Appendix 4.

8.0 PUBLIC INVOLVEMENT AND NOTIFICATION

The public involvement program for selecting a route for the 115 kV transmission line was conducted by the Ontario Waste Management Corporation as part of its Presubmission Public Consultation Program. This program made provision for various levels of involvement by the appropriate provincial ministries, the regional and local municipalities, and potentially affected property owners.

At the outset of the study, meetings were held with appropriate provincial ministries and the local municipality to provide information about the route selection study, identify concerns, and collect land use and environmental data. As the study progressed, information was provided regarding alternative locations for the transmission facilities, their potential effects on identified concerns, and possible mitigation measures. Opportunities were provided for ministry and municipal review of the alternative and preferred routes.

Information regarding the location of the alternative routes, and the type of transmission facilities to be installed, was also sent to thirty-six property owners directly or indirectly affected by each route alternative.

Following the selection of Silverdale Road (Route BFGK) as the preferred route, all thirty-six property owners were advised of the decision and provided a final opportunity for comment.

A summary of the comments received from the provincial ministries, the local municipality, and potentially affected property owners during the study is presented in Table 5.

Table 5

Summary of Comments on Alternative Routes

<u>External Agency/Public</u>	<u>Comment</u>
Ontario Ministry of Agriculture and Food	- official response forthcoming
Ontario Ministry of Culture and Communications	- heritage resource assessment on preferred route should clarify degree of disturbance to archaeological sites by previous ditching and grading activities along road allowance - no route preference
Ontario Ministry of Natural Resources	- prefer route BFGK (Silverdale Road) since it has least impact on forestry and biological concerns - consult district office re. mitigation measures prior to construction of facilities
Ontario Ministry of Transportation	- consult ministry once right of way location at Hwy 20 is finalized - no route preference
Township of West Lincoln (Staff)	- consider realignment of segment F-G to minimize visual impact on adjacent residence - owner concerned about effects of line on his WIA plantation - several residences close to transmission and switching facilities along route BFGK (Silverdale Road) - minimize tree clearing in Class II wetlands in segments A-D and E-J - decline to indicate route preference at this time

Table 5 (Cont'd)

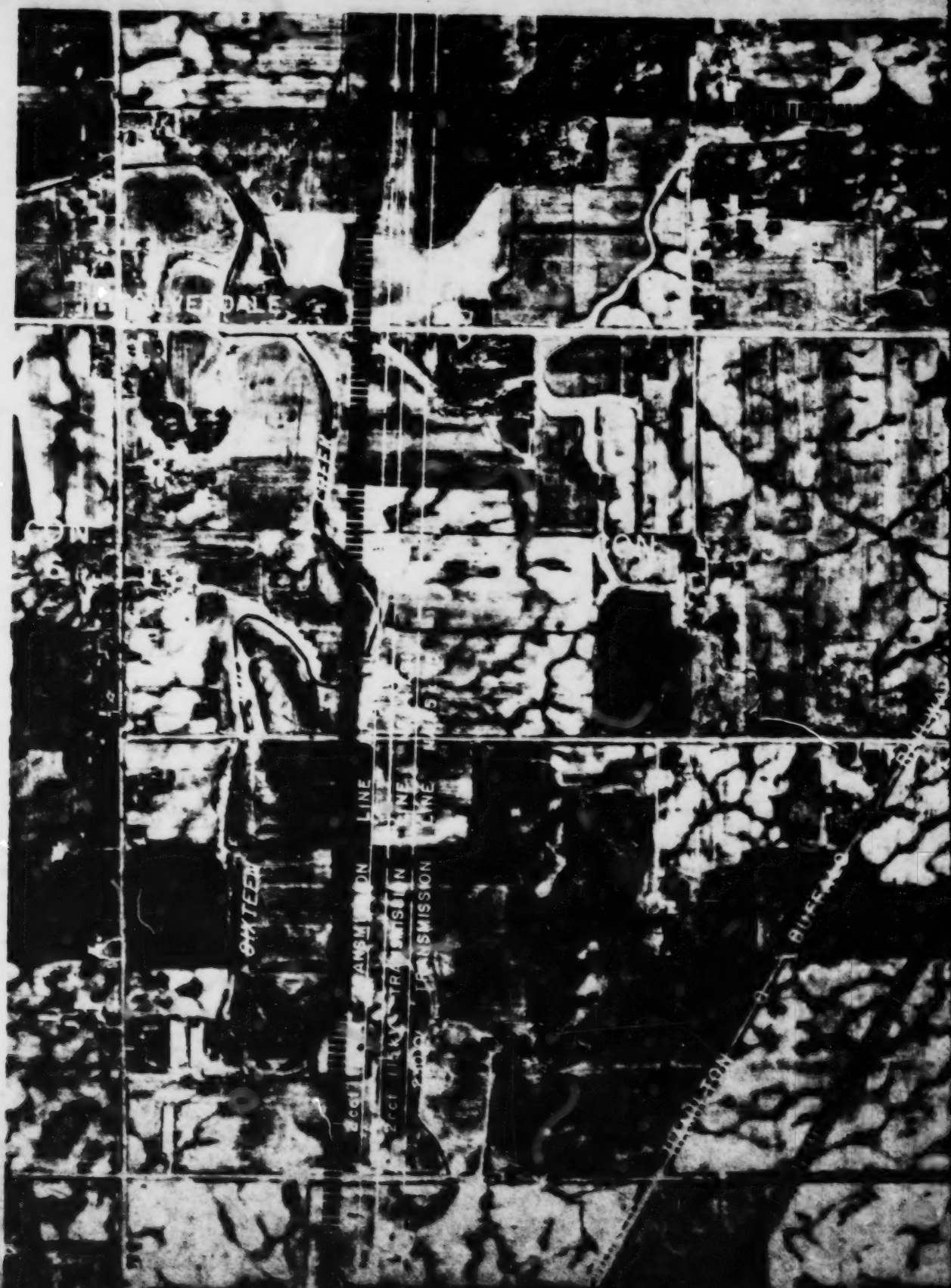
Summary of Comments on Alternative Routes

<u>External Agency/Public</u>	<u>Comment</u>
Mr. R.L. Bradley Part Lot 13, Concession V Township of West Lincoln	- concerned about effects of line on his WIA plantation in segment F -G - strongly opposed to OWMC project and to any route for transmission line
Mr. C. Huizinga Part Lot 17, Concession IV Township of West Lincoln	- if route must cross his property, then follow property line in segment C -H - no route preference specified
Mr. E. Kszan Part Lot 18, Concession IV Township of West Lincoln	- general concern about location of transmission line opposite her home in segment B -F - no route preference specified
Mr. W. Lockey Part Lot 13, Concession V Township of West Lincoln	- prefer Book Road alignments in view of potential visual impact on residents along route BFGK (Silverdale Road) - route BFGK acceptable with respect to his farm in segment B -F
Mr. E. Weiss Part Lot 12, Concession V Township of West Lincoln	- strongly opposed to route BFGK (Silverdale Road) in view of impacts of line on principal views from his residence in segment B -F and on ornamental plantings adjacent to house - prefer Book Road alignments in view of potential visual impact on residents along route BFGK

APPENDICES

APPENDIX 1

ENVIRONMENTAL INVENTORY



TOWNSHIP OF WILCOX

OWNING
PREFERRER
SITE
111-0

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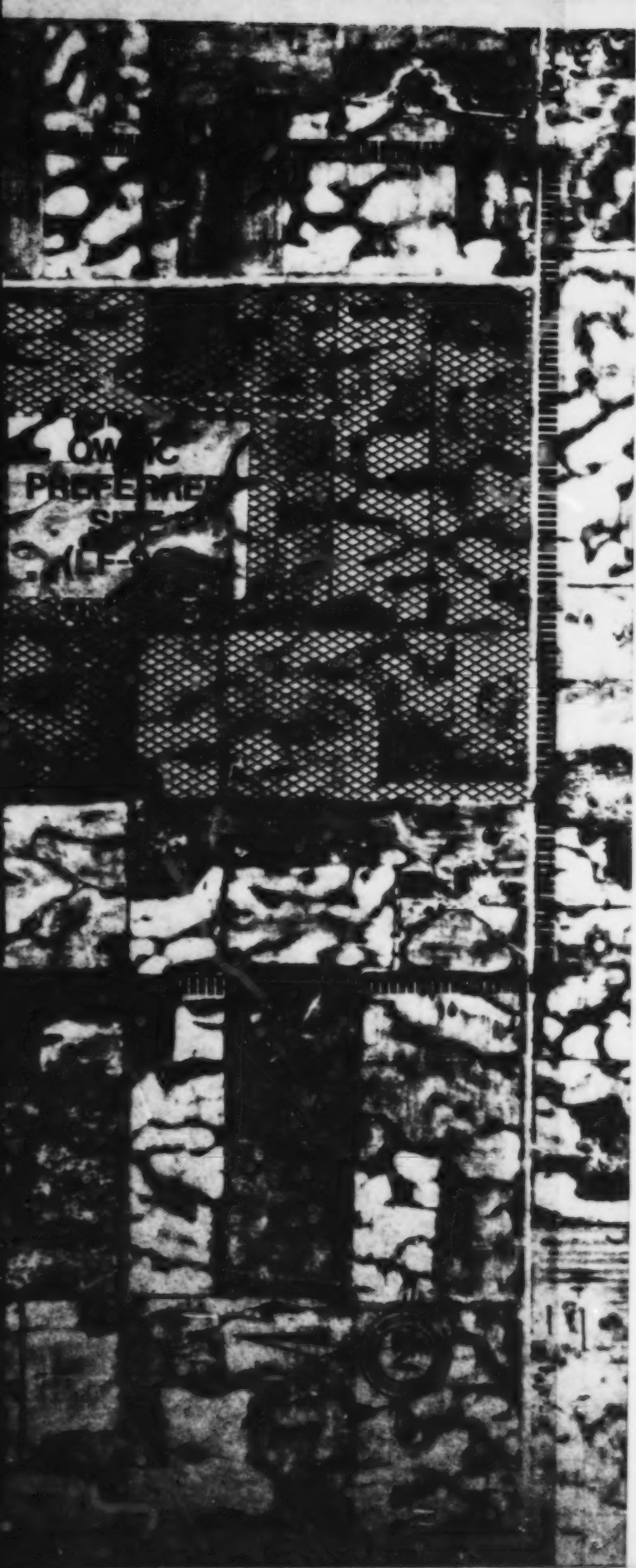


Figure 1-1

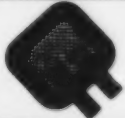
Human Settlement

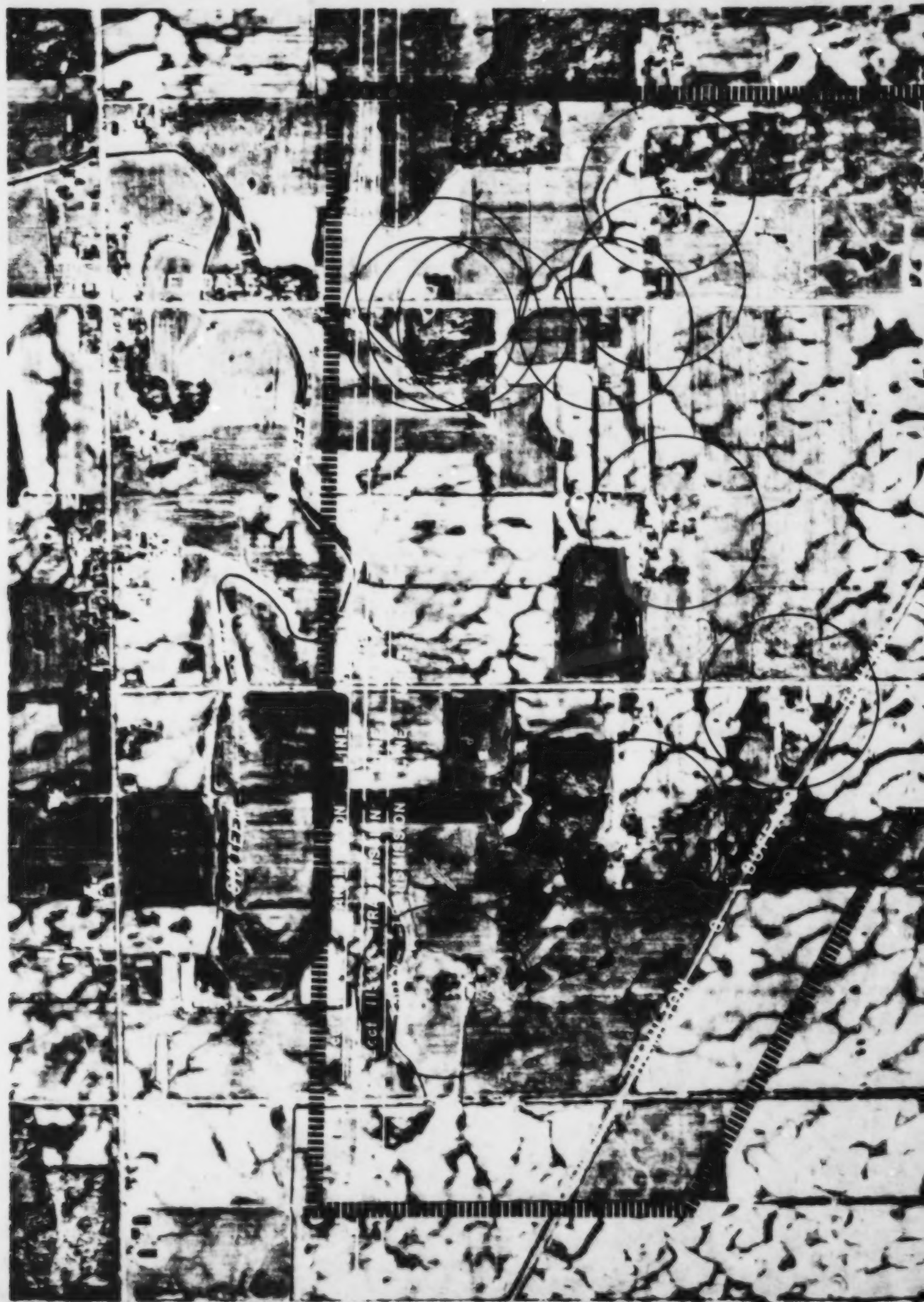
Legend

- Residence
- Abandoned Residence
- Farm Building (Barn, Driveshed or Outbuilding)
- Abandoned Farm Building
- ▲ Commercial Building
- 1 Auto Wrecking Yard

Data Sources

Field Inspection
Airphoto Interpretation

REV	DATE	PARTICULARS	APPROVED
 Ontario Hydro Design and Development Division - Transmission			
Supply to Ontario Waste Management Corporation (OWMC)			
Drawn By		Coordinating Planner	
WD/MC		W.B. Draper	
Date		Project Engineer	
26 June 1987		R.A. Alstrom	
Work Order		Supervising Project Engineer	
840 - 04352		G.M. Hoglund	
Scale	Drawing No		Rev Sheet
1:10,000	RS243 LUEP-MX3-0002		0 1 of 1



TOWNSHIP OF WILSON

OWMC
PREFERRED
SITE
(LF-90)





Figure 1-2

Visual Resources

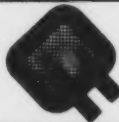
Legend



Zone of High Visual Impact
(180 m radius from residential building)

Data Sources

Appendix 3 (p.3-3)

REV	DATE	PARTICULARS	APPROVED
 Ontario Hydro Design and Development Division - Transmission			
Supply to Ontario Waste Management Corporation (OWMC)			
Drawn By		Coordinating Planner	
WD/MC		W B Draper	
Date		Project Engineer	
26 June 1987		R.A. Alstrom	
Work Order		Supervising Project Engineer	
840 - 04352		G.M. Hoglund	
Scale	Drawing No	Rev	Sheet
1:10,000	RS243 LUEP-MX3-0002	0	1 of 1

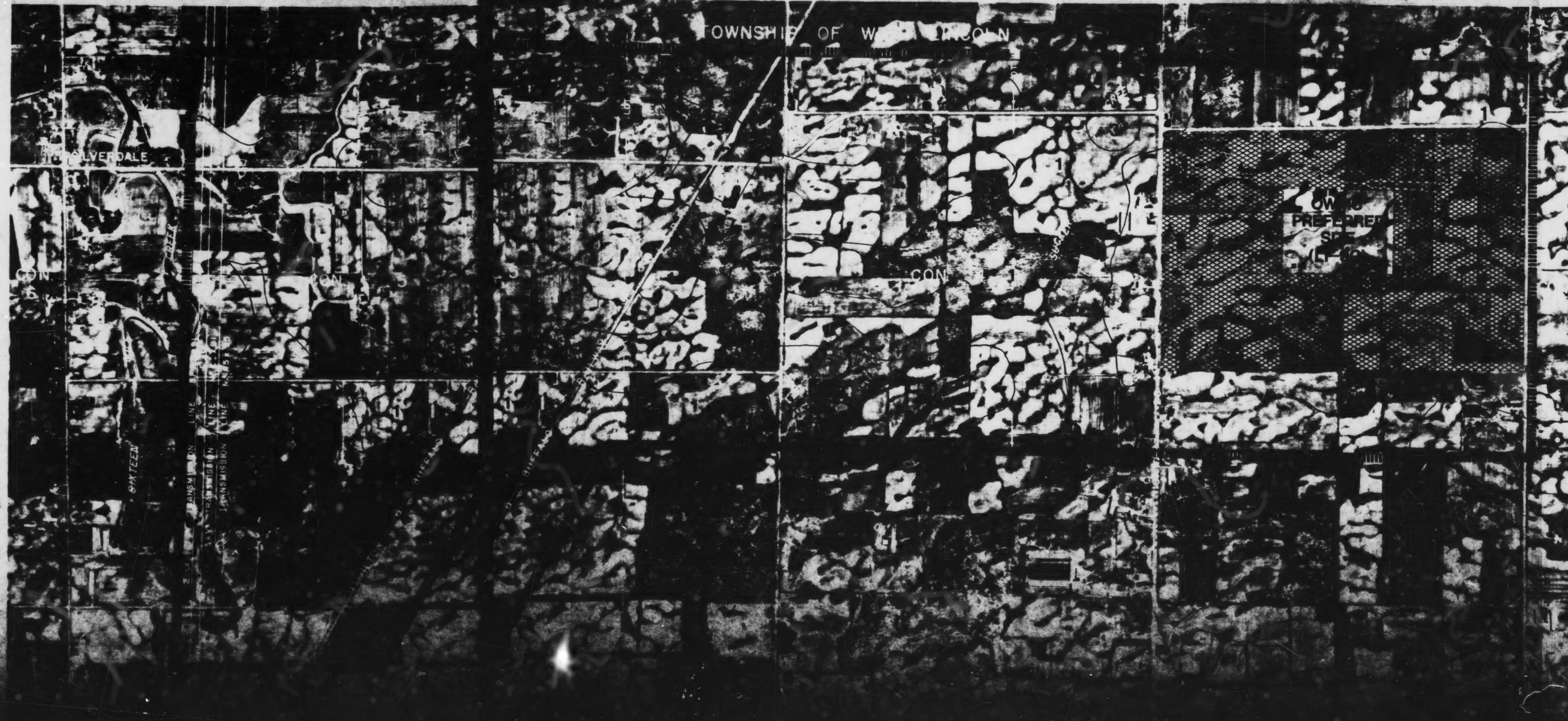


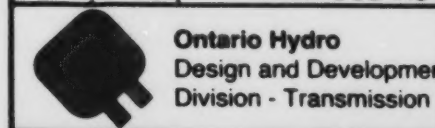
Figure 1-3
Archaeological Resources
Legend

1. High Prehistoric Archaeological Potential within a 100 m radius from water courses portrayed on 1:25,000 and 1:50,000 NTS maps
2. Site of Silverdale Station and Associated Buildings Circa 1895-1935 (100 m buffer)
3. Site of Residence Present in 1876 (100 m buffer)
4. Site of Residence Present 1907-1935 (100 m buffer)
5. Site of Church Present in 1876.

Data Sources
 Appendix 3 (p. 3-1)

Definition of Terms
 Appendix 5

REV	DATE	PARTICULARS
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Supply to Ontario Waste Management Corporation (OWMC)

Drawn By	WD/MC	Coordinated By	
Date	30 June 1987	Project Engineer	
Work Order	840 - 04352	Supervisor	
Scale	1:10,000	Drawing No	RS243 LUEP-MX

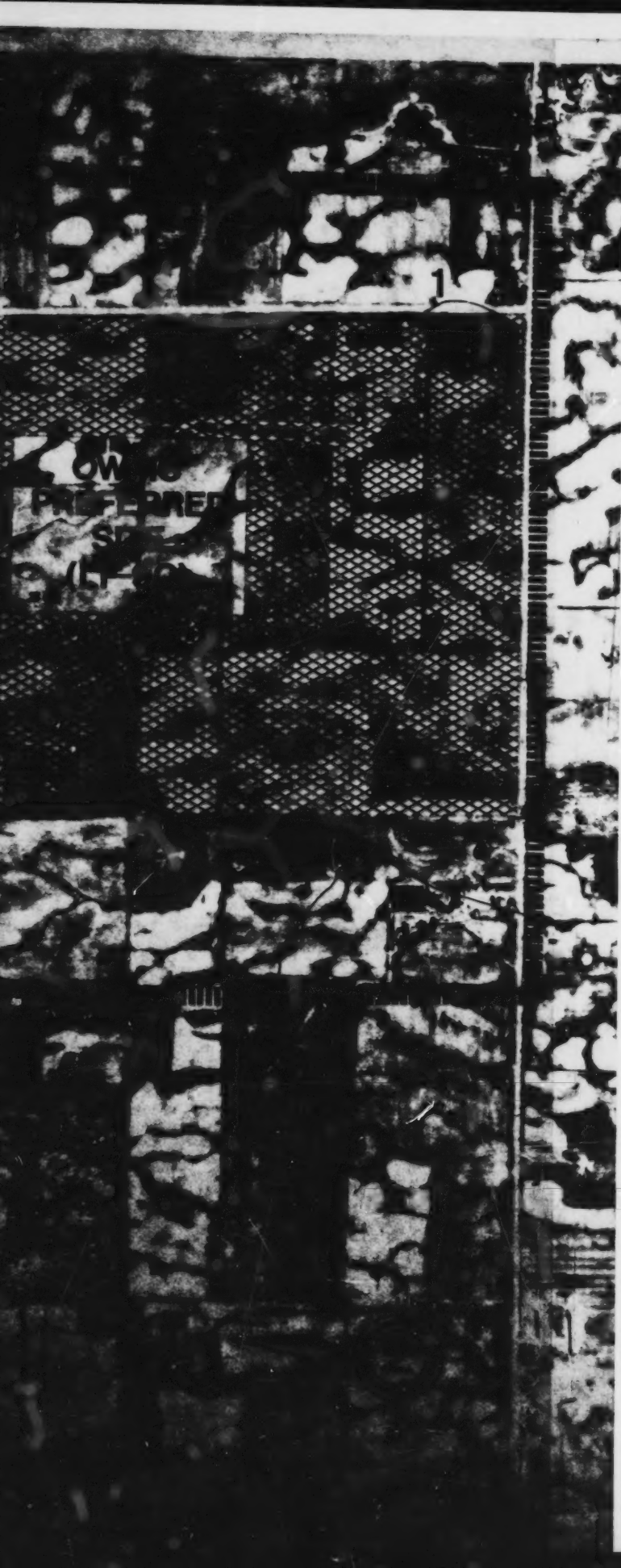


Figure 1-3 **Archaeological Resources** **Legend**

1. High Prehistoric Archaeological Potential (200 m radius from water courses portrayed on 1:25,000 and 1:50,000 NTS maps)
2. Site of Silverdale Station and Associated Buildings Circa 1895-1935 (100 m buffer)
3. Site of Residence Present in 1876 (100 m buffer)
4. Site of Residence Present 1907-1915 (100 m buffer)
5. Site of Church Present in 1876.

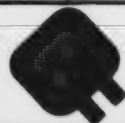
Data Sources

Appendix 3 (p. 3-1)

Definition of Terms

Appendix 5

REV	DATE	PARTICULARS	APPROVED
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Ontario Hydro
Design and Development
Division - Transmission



Supply to Ontario Waste Management Corporation (OWMC)

Drawn By WD/MC	Coordinating Planner W.B. Draper
Date 30 June 1987	Project Engineer R.A. Alstrom
Work Order 840 - 04352	Supervising Project Engineer G.M. Hoglund
Scale 1:10,000	Drawing No RS243 LUEP-MX3-0002
Rev 0	Sheet 1 of 1

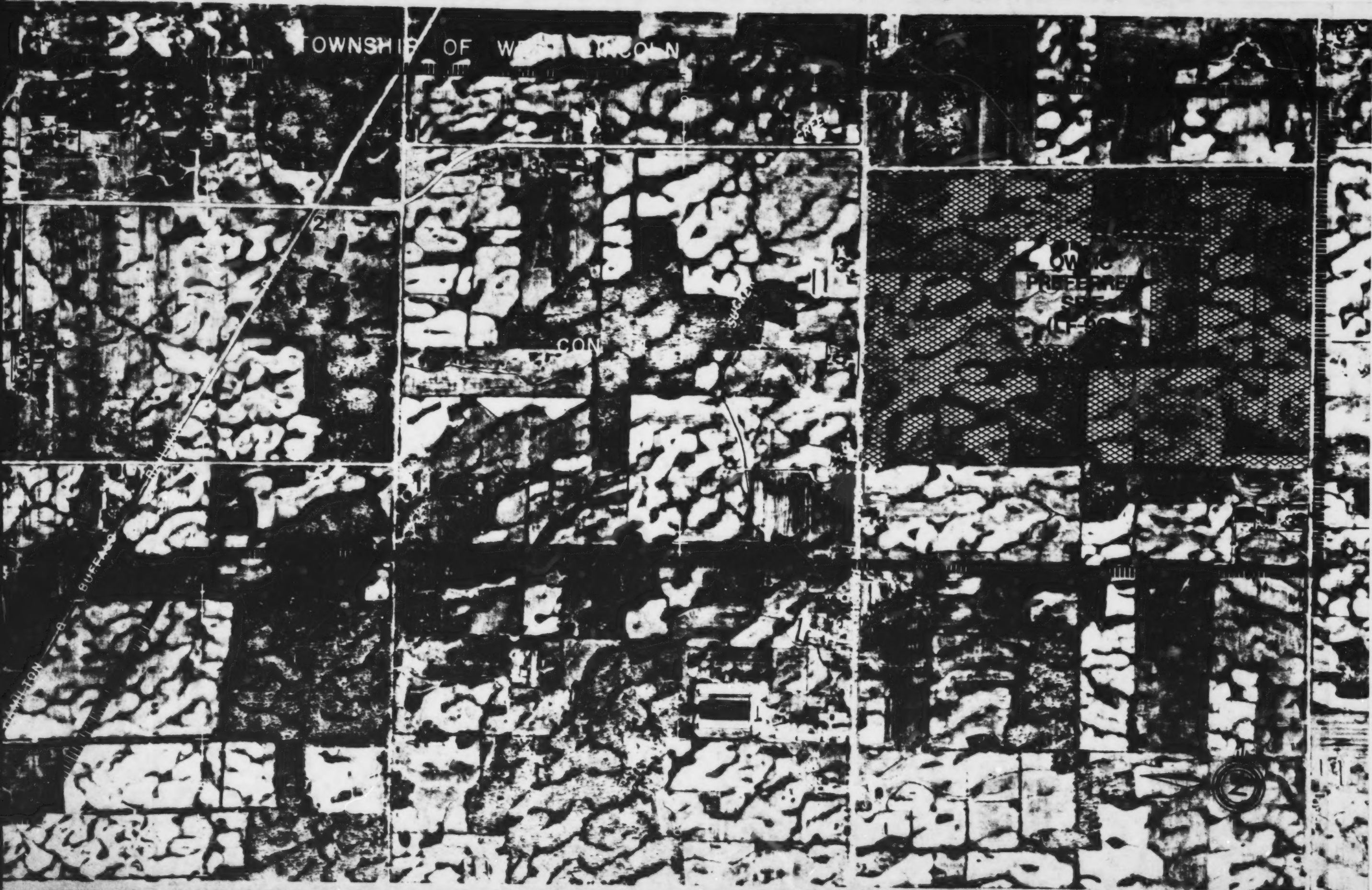


Figure 1-4
Heritage Resources

Legend

**Standing Residential, Commercial, Institutional Buildings
1876-1915**

1. Building of Significant Heritage Value
2. Building of Heritage Interest
3. Building of Minimal Heritage Value
4. Building of Potential Heritage Value

Heritage Landscapes

5. Heritage Landscape

Data Sources

Appendix 3 (p. 3-1)

Definition of Terms

Appendix 5

1	1987 09/25	Building of significant Highway 20 and Schomberg
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REV	DATE	PARTIAL
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**Supply to Ontario Water
Corporation (OWMC)**

Drawn By	WD/MC
Date	26 June 1987
Work Order	840 - 04352
Scale	1:10,000
Drawing No	RS243

Figure 1-4

Heritage Resources

Legend

**Standing Residential, Commercial,
Institutional Buildings
1876-1915**

1. Building of Significant Heritage Interest
2. Building of Heritage Interest
3. Building of Minimal Heritage Interest
4. Building of Potential Heritage Interest

Heritage Landscapes

5. Heritage Landscape

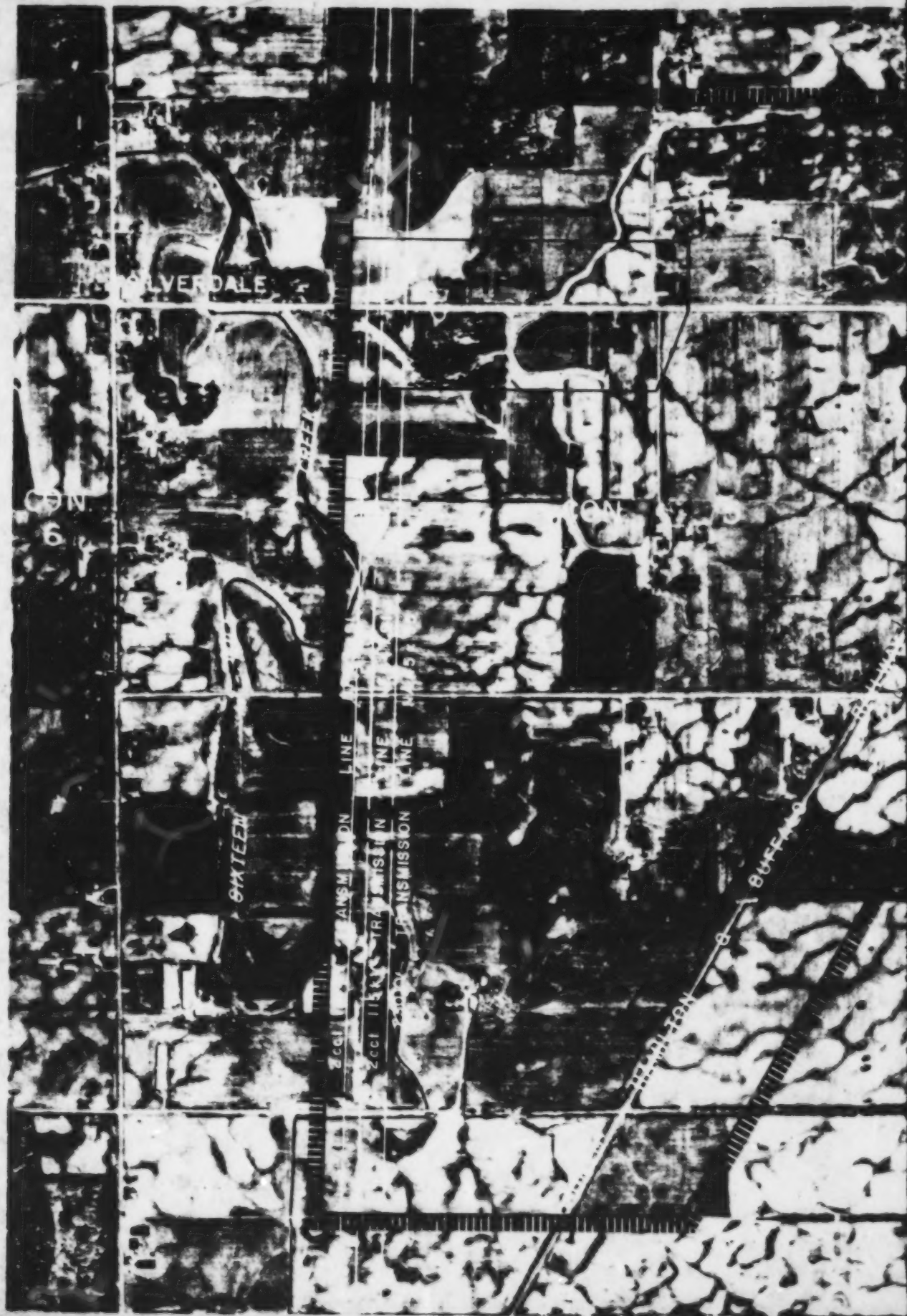
Data Sources

Appendix 3 (p. 3-1)

Definition of Terms

Appendix 5

1	1987/09/25	Building of significant heritage interest (storey) at Highway 20 and Schram Road dismantled in July 1987	WBD
REV	DATE	PARTICULARS	APPROVED
 Ontario Hydro Design and Development Division - Transmission			
Supply to Ontario Waste Management Corporation (OWMC)			
Drawn By WD/MC		Coordinating Planner W.B. Draper	
Date 26 June 1987		Project Engineer R.A. Alstrom	
Work Order 840 - 04352		Supervising Project Engineer G.M. Hoglund	
Scale 1:10,000	Drawing No. RS243 LUEP-MX3-0002		Rev 1
			Sheet 1 of 1



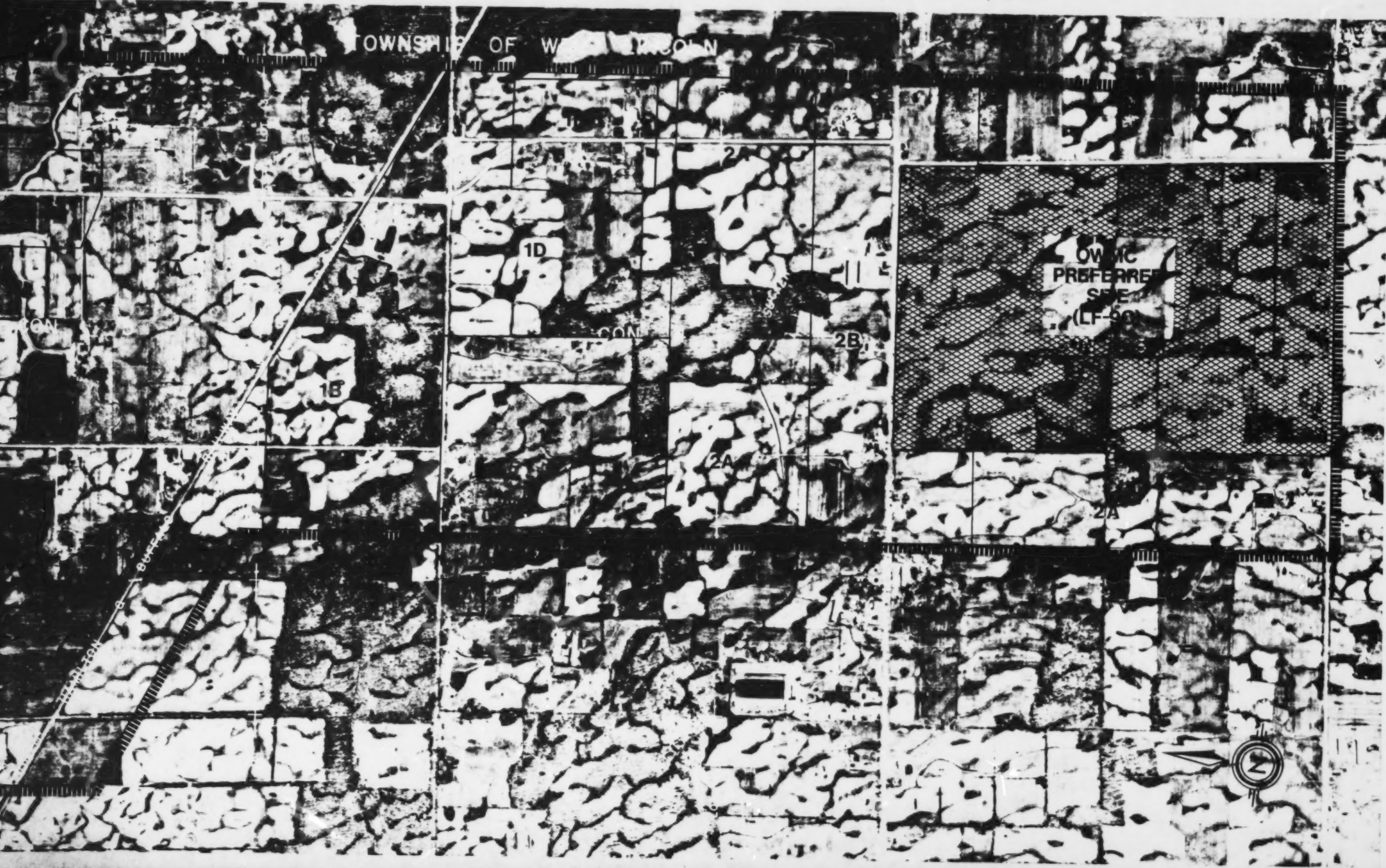


Figure 1-5
Cultural Land

Legend

- 1A Rural Land
- 1B Rural Land
- 1C Rural Land
- 1D Rural Land
- 1E Rural Land
- 1F Rural Land
- 2A Transition
- 2B Transition

Data Sources

Appendix 3 (p. 1)

Definition of Terms

Appendix 5

REV	DATE
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Supply to Ontario Corporation

Drawn By	WD/MC
Date	30 June 1984
Work Order	840 - 043
Scale	1:10,000
Drawing No.	

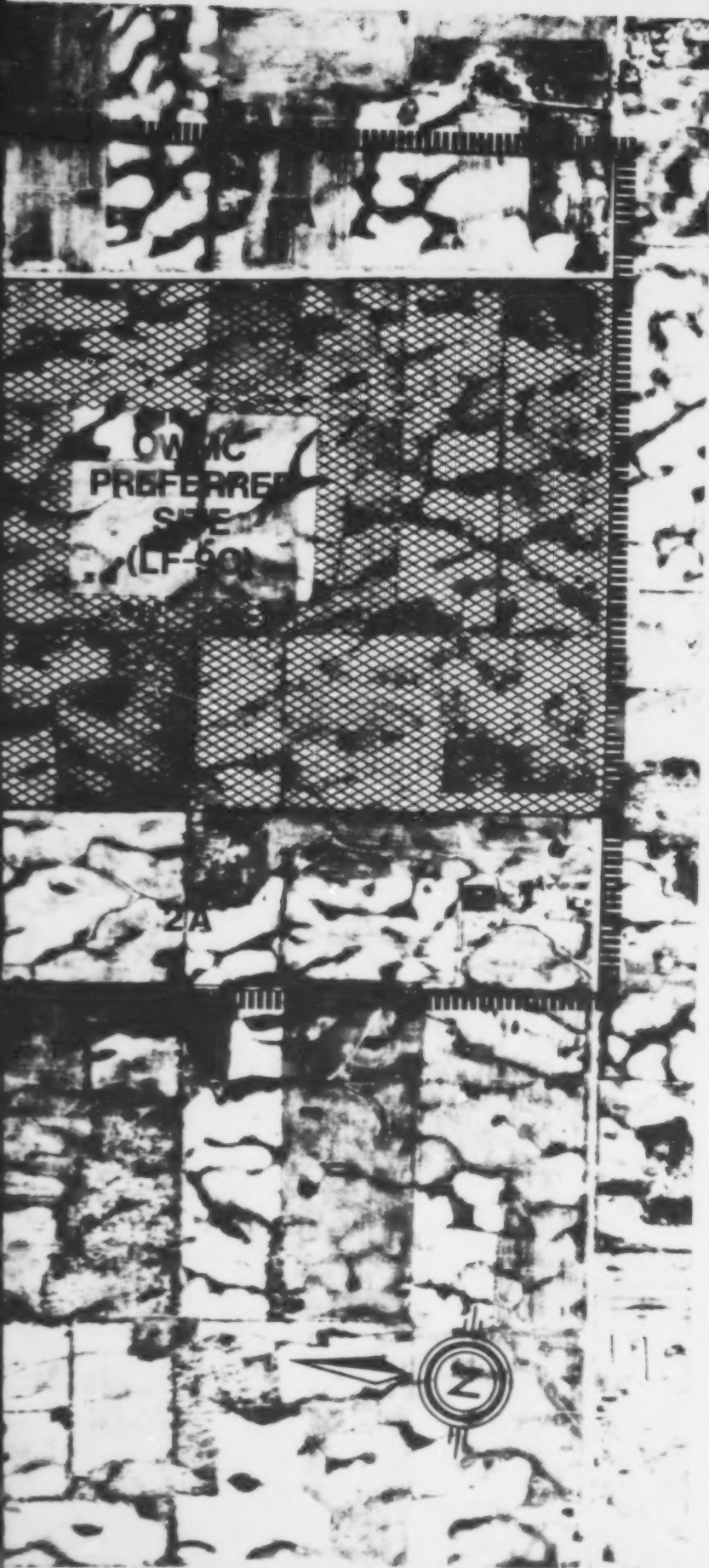


Figure 1-5

Cultural Landscapes

Legend

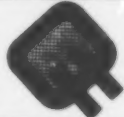
- 1A Rural Landscape
- 1B Rural Landscape
- 1C Rural Landscape
- 1D Rural Landscape
- 1E Rural Residential Landscape
- 1F Rural Residential Landscape
- 2A Transitional Landscape
- 2B Transitional Landscape

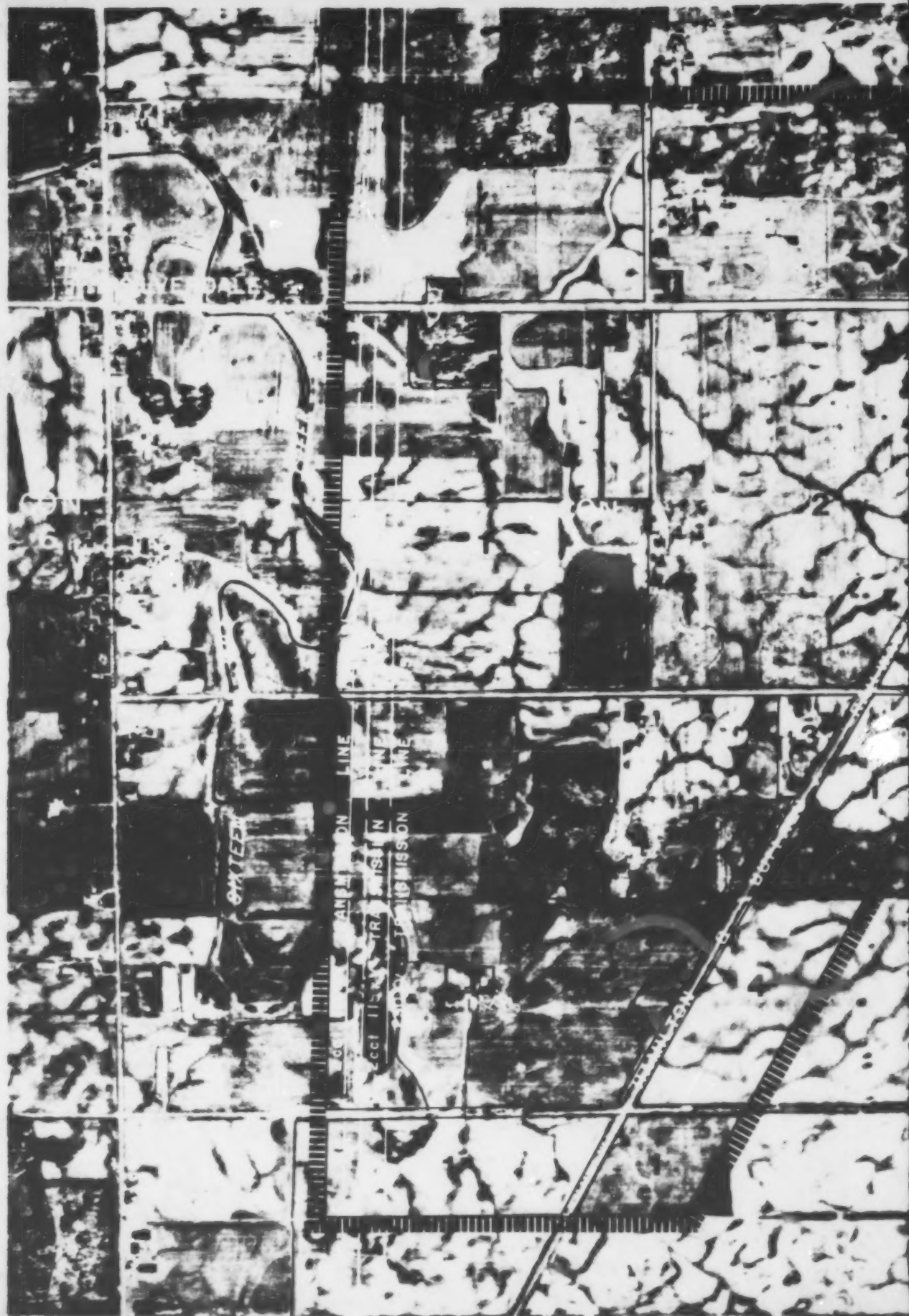
Data Sources

Appendix 3 (p. 3-1)

Definition of Terms

Appendix 5

REV	DATE	PARTICULARS	APPROVED
 Ontario Hydro Design and Development Division - Transmission			
Supply to Ontario Waste Management Corporation (OWMC)			
Drawn By: WD/MC		Coordinating Planner: W B Draper	
Date: 30 June 1987		Project Engineer: R.A. Alstrom	
Work Order: 840 - 04352		Supervising Project Engineer: G.M. Hoglund	
Scale: 1:10,000	Drawing No: RS243 LUEP-MX3-0002		Rev: 0 Sheet: 1 of 1



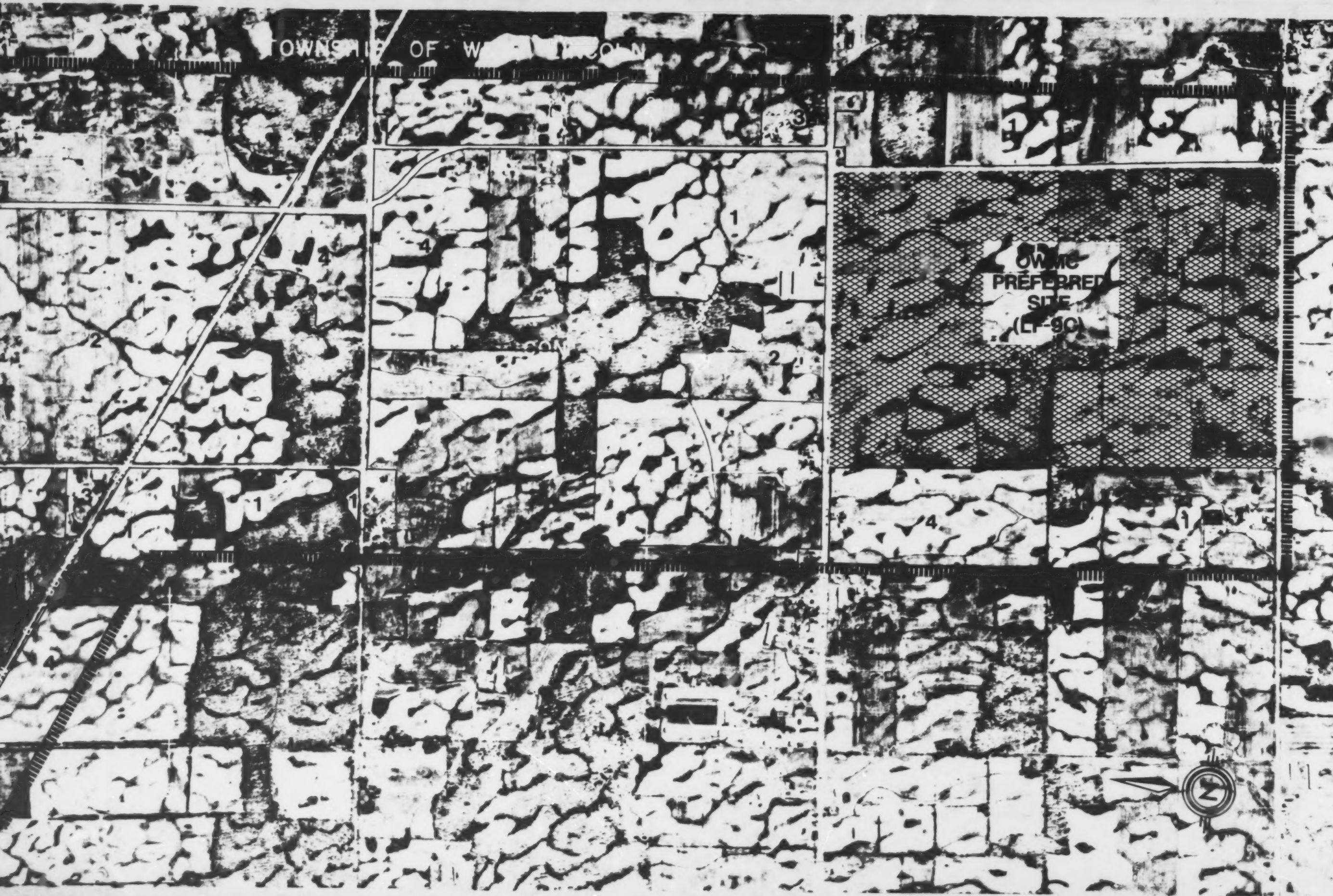


Figure 1-6
Agricultural Resources

Legend

1. Class 2, 3 Capability, Intensive
2. Class 2, 3 Capability, Moderate
3. Class 2, 3 Capability, Low Intensive
4. Class 2, 3 Capability, Idle Land

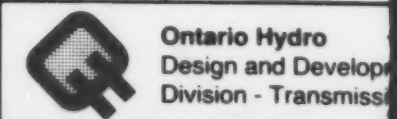
Data Sources

Appendix 3 (p. 3-3)

Definition of Terms

Appendix 5

REV	DATE	PARTICULARS



Supply to Ontario Waste Management Corporation (OWMC)

Drawn By	WD/MC	Checked By	
Date	30 June 1987	Proposed By	
Work Order	840 - 04352	Submitted By	
Scale	1:10,000	Drawing No	RS243 LUER

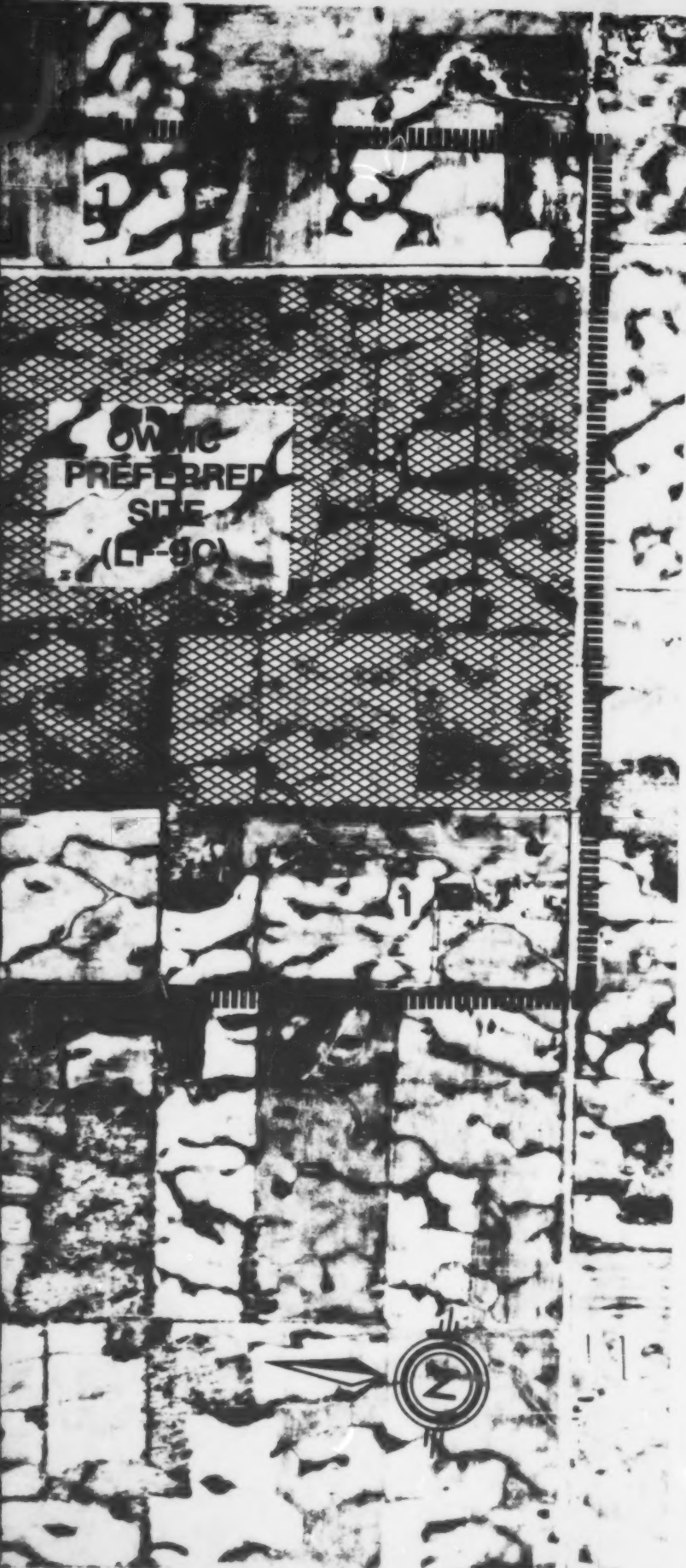


Figure 1-6

Agricultural Resources

Legend

1. Class 2, 3 Capability, Intensive Land Use
2. Class 2, 3 Capability, Moderately Intensive Land Use
3. Class 2, 3 Capability, Low Intensity Land Use
4. Class 2, 3 Capability, Idle Land Use

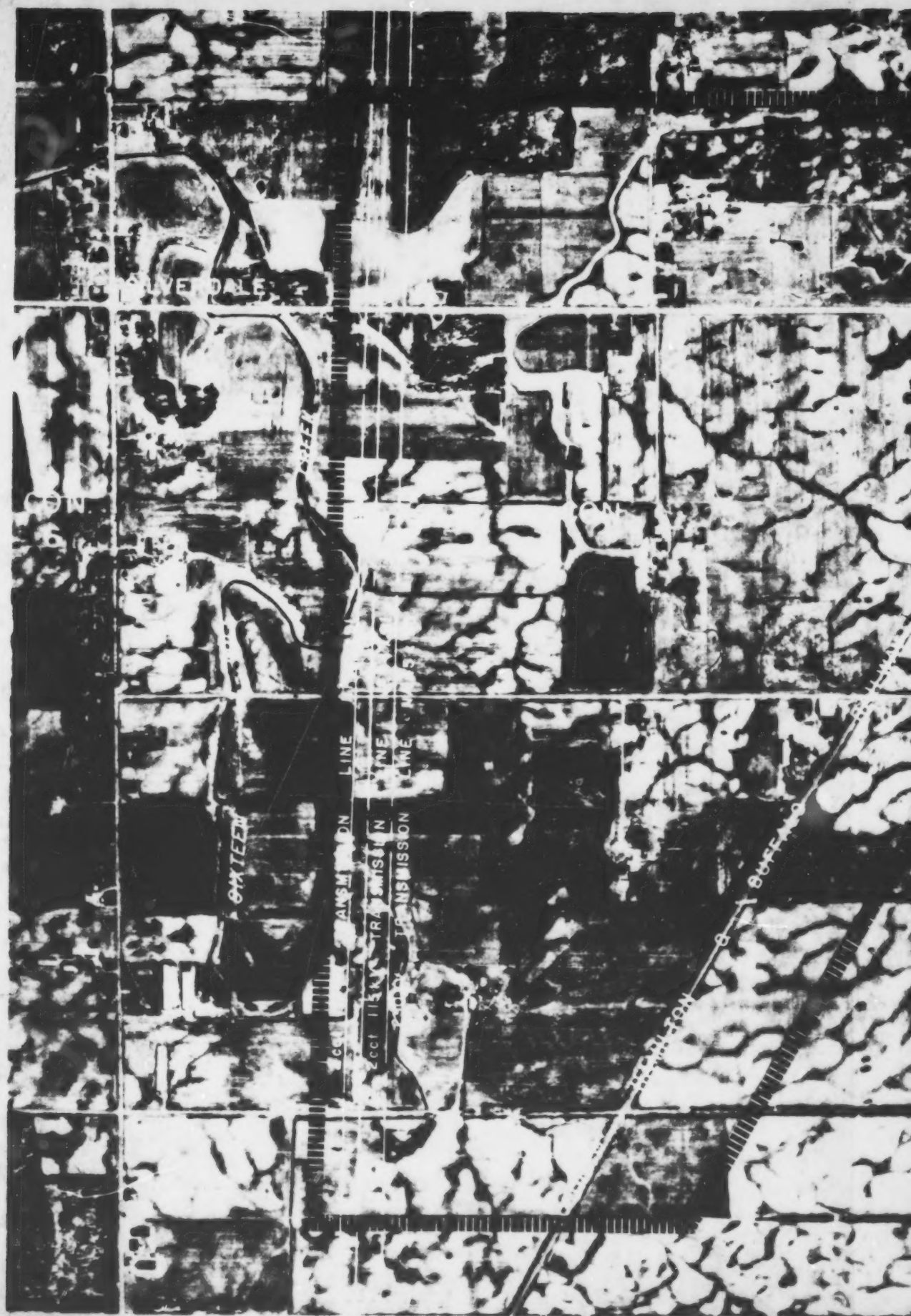
Data Sources

Appendix 3 (p. 3-3)

Definition of Terms

Appendix 5

REV	DATE	PARTICULARS	APPROVED
 Ontario Hydro Design and Development Division - Transmission			
Supply to Ontario Waste Management Corporation (OWMC)			
Drawn By WD/M ^c		Coordinating Planner W B Draper	
Date 30 June 1987		Project Engineer R A. Alstrom	
Work Order 840 - 04352		Supervising Project Engineer G.M. Hoglund	
Scale 1:10,000		Drawing No. RS243 LUEP-MX3-0002	
		Rev 0	Sheet 1 of 1



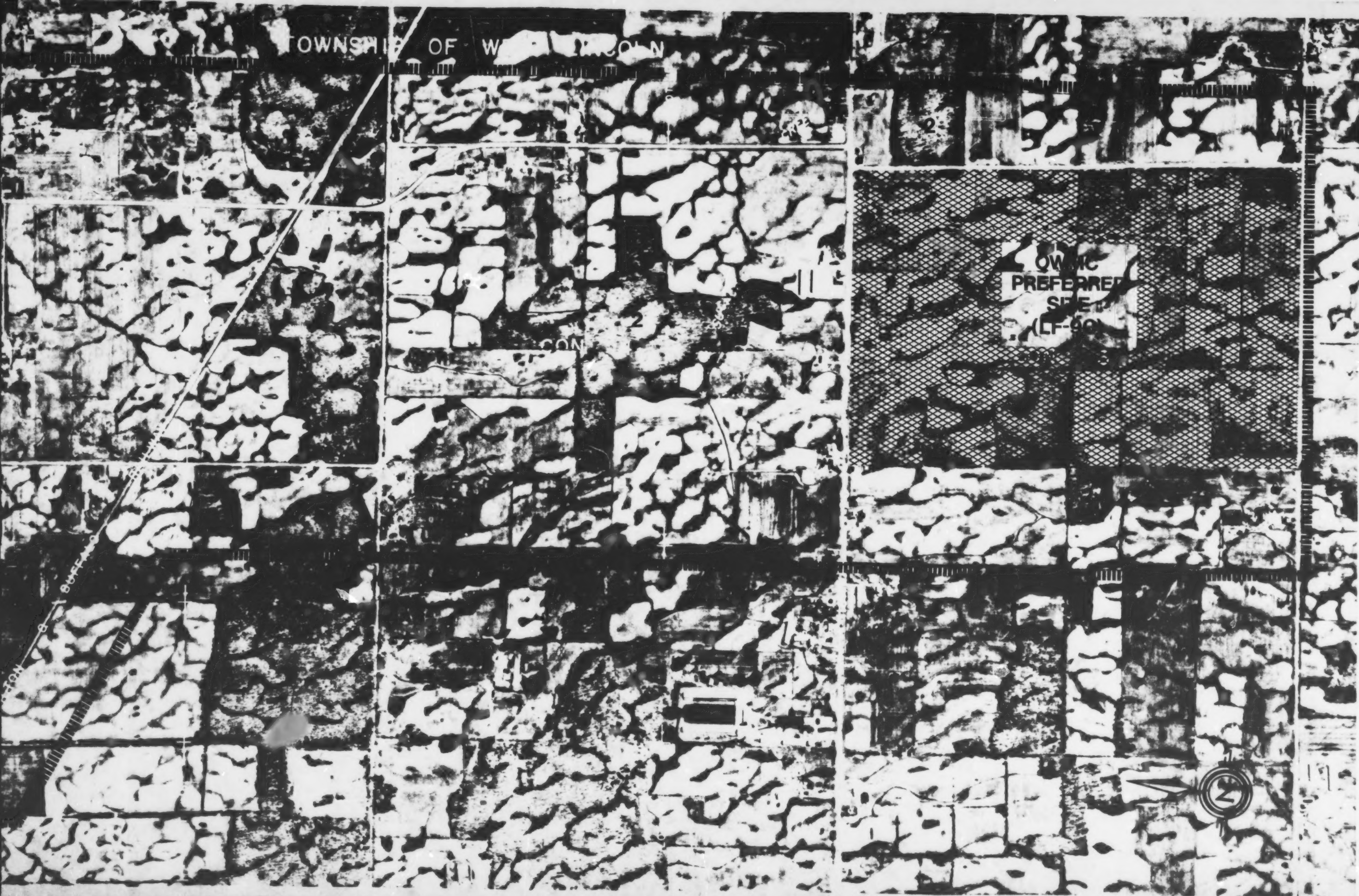


Figure 1-7
Forest Resources

Legend

1. Woodlands Improvement A
2. High Potential Forest Res
3. Other Private Woodlots > 2

Data Sources

Appendix 3 (p. 3-4)

Definition of Terms

Appendix 5

REV	DATE	PARTICUL
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Ontario Hydro
Design and Develop
Division - Transmis

**Supply to Ontario Waste
Corporation (OWMC)**

Drawn By	WDMC
Date	26 June 1987
Work Order	840 - 04352
Scale	1:10,000
Drawing No	RS243 LUE

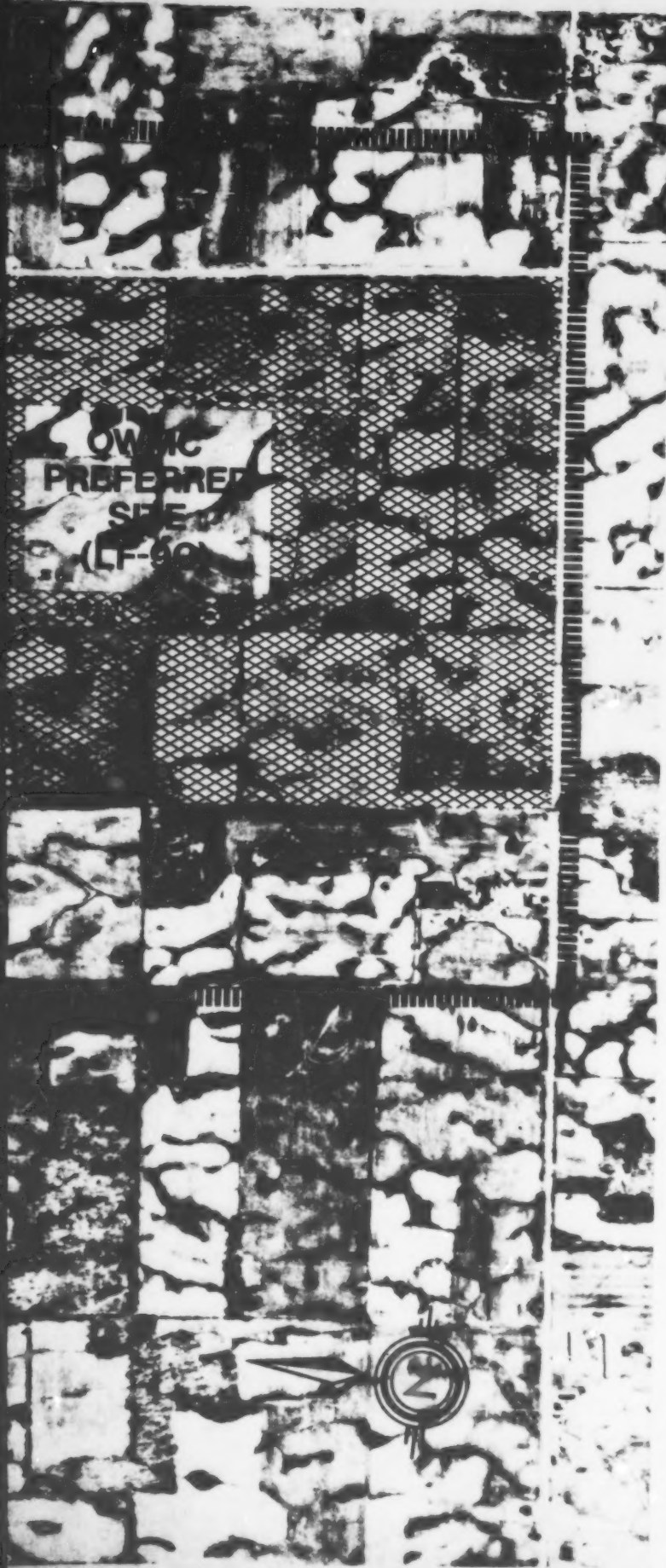


Figure 1-7

Forest Resources

Legend

1. Woodlands Improvement Act Plantation
2. High Potential Forest Resource Area
3. Other Private Woodlots - 2 ha

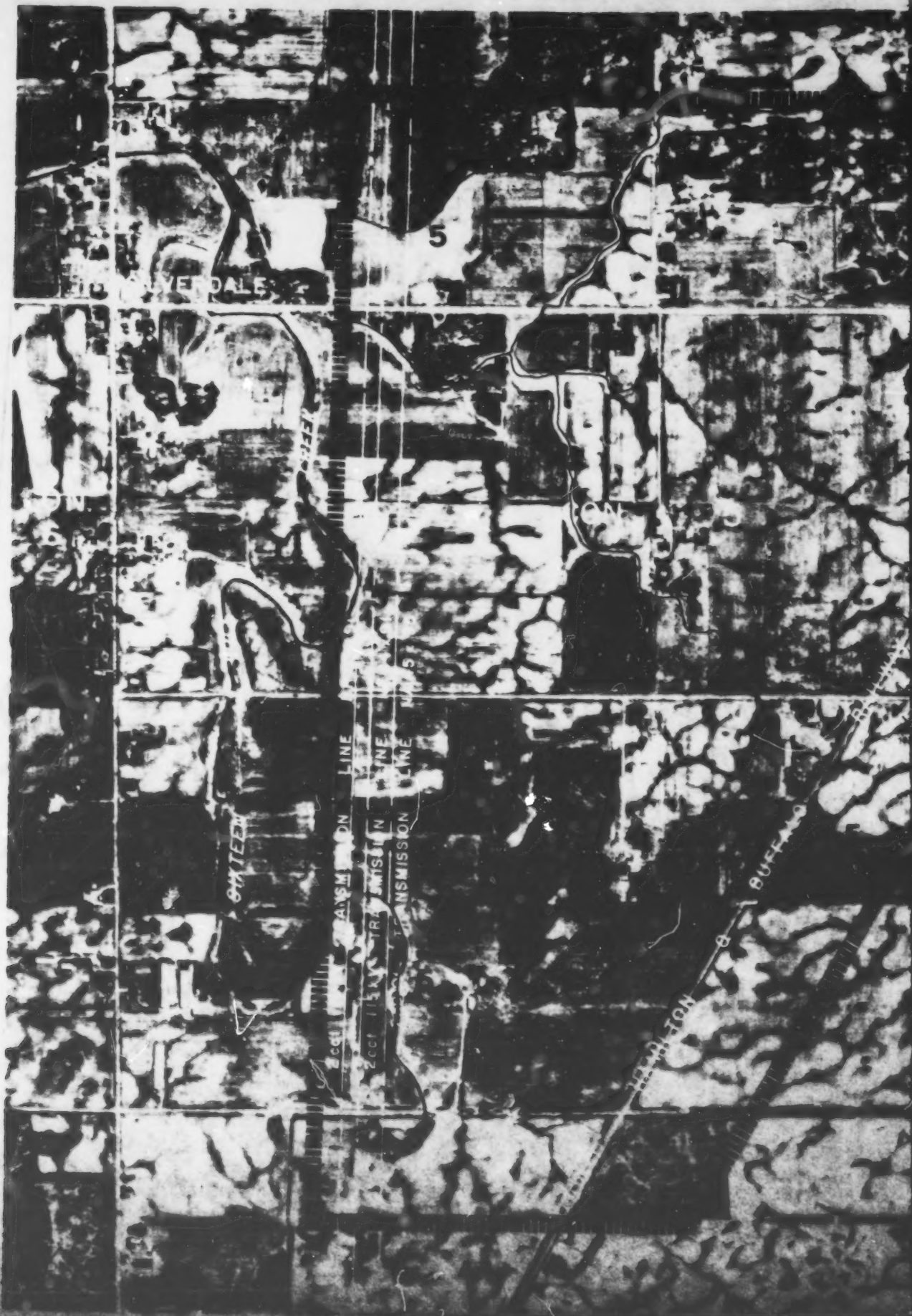
Data Sources

Appendix 3 (p. 3-4)

Definition of Terms

Appendix 5

REV	DATE	PARTICULARS	APPROVED
 Ontario Hydro Design and Development Division - Transmission			
Supply to Ontario Waste Management Corporation (OWMC)			
Drawn By		Coordinating Planner	
WD/MC		W B Draper	
Date		Project Engineer	
26 June 1987		R A Alstrom	
Work Order		Supervising Project Engineer	
840 - 04352		G M Hoglund	
Scale	Drawing No	Rev	Sheet
1:10,000	RS243 LUEP-MX3-0002	0	1 of 1



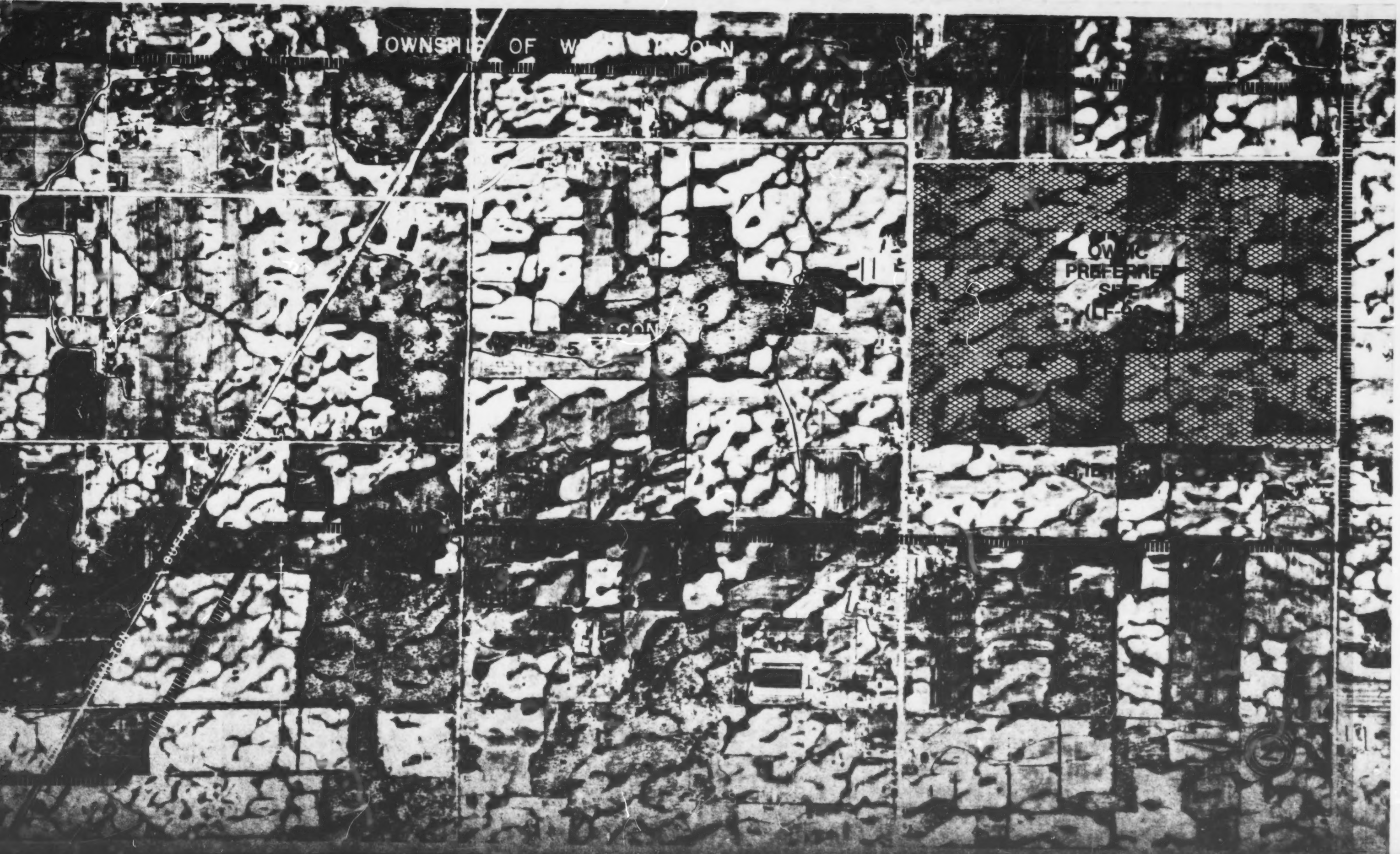


Figure
Biological
Legend

- 1. Rare
- 1A. Sou
- 1B. Blac
- 1C. Can
- 2. Clas
- 3. Env
- 4. Dee
- 5. Inter
- Man

Data Sou

Appendix

Definition

Appendix

REV | DAT



Supply
Corpor

Drawn By WD

Date 26

Work Order 840

Scale
1:10,000

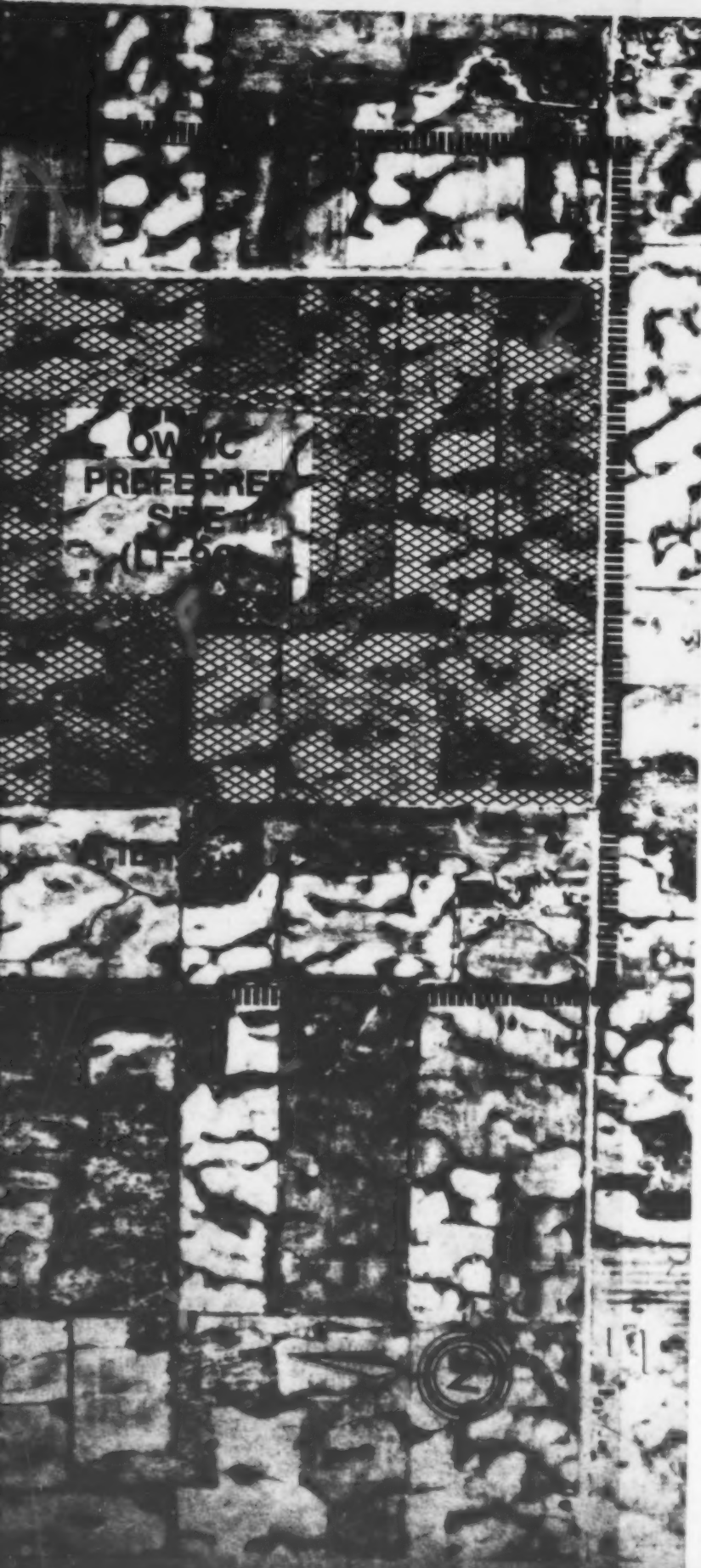


Figure 1-8

Biological Resources

Legend

1. Rare Plant Species
 - 1A Southern Arrow-wood (Viburnum recognitum)
 - 1B Black Gum (Nyssa sylvatica)
 - 1C Canada Plum (Prunus nigra)
2. Class II Wetland
3. Environmentally Sensitive Area
4. Deer Wintering Area
5. Intermittent Stream with Potential for Fishery Management

Data Sources

Appendix 3 (p. 3-4)

Definition of Terms

Appendix 5

REV	DATE	PARTICULARS	APPROVED
 Ontario Hydro Design and Development Division - Transmission			
Supply to Ontario Waste Management Corporation (OWMC)			
Drawn By		Coordinating Planner	
WD/MC		W.B. Draper	
Date		Project Engineer	
26 June 1987		R.A. Alstrom	
Work Order		Supervising Project Engineer	
840 - 04352		G.M. Hoglund	
Scale	Drawing No.	Rev	Sheet
1:10,000	RS243 LUEP-MX3-0002	0	1 of 1

APPENDIX 2

STUDY CONTACTS

Appendix 2

Study Contacts

<u>Government Agency</u>	<u>Location</u>	<u>Contact</u>	<u>Hydro Personnel</u>	<u>Purpose of Contact</u>
I GOVERNMENT OF CANADA				
I. National Museum of Natural Sciences	Ottawa	K. Pryer, Vascular Plant Herbarium	B. Draper	Clarify status and distribution of selected provincially rare plants in Regional Municipality of Niagara; report finding of <u>Viburnum recognitum</u> .
		A. Dugal, Vascular Plant Herbarium	B. Draper	Clarify sensitivity of <u>Viburnum recognitum</u> to transmission line disturbance.
II GOVERNMENT OF ONTARIO				
I. Ontario Ministry of Agriculture and Food				
Agricultural Representatives Branch		C. Holden, Agricultural Representative, Niagara North	B. Draper	Introduce study; identify concerns; retrieve data; review alternative routes; identify route preference.
Foodland Preservation Branch	Ancaster	R. Valaitis, Land Use Specialist	B. Draper	Introduce study; review alternative routes; identify route preference.
2. Ontario Ministry of Culture and Communications				
Heritage Branch, Archaeology Unit	Toronto	K. Dandy, Data Coordinator	B. Draper	Retrieve site record data.

Appendix 2 (Cont'd)

Study Contacts

<u>Government Agency</u>	<u>Location</u>	<u>Contact</u>	<u>Hydro Personnel</u>	<u>Purpose of Contact</u>
Heritage Branch, Heritage Programs Unit	Toronto	P. Carruthers, Environmental Assessment Coordinator	B. Draper	Introduce study; identify concerns; review alternative routes; identify route preference.
Heritage Branch, Archaeological Field Offices	London	I. Kenyon, Staff Archaeologist	J. Peters	Review approach and criteria for assessing archaeological potential.
Archives of Ontario	Toronto	J. Fortier, Map Archivist	B. Draper	Review map records relating to potential historic sites.
3. Ontario Ministry of Natural Resources				
Wildlife Branch	Toronto	I. Bowman, Non-Game Program Coordinator	B. Draper	Clarify status of selected rare plant species.
Niagara District Office	Fonthill	L. Barbetti, Resource Liaison Officer	B. Draper	Introduce study; identify concerns; report finding of <u>Viburnum recognitum</u> ; review alternative routes; identify route preference.
		G. Mulder, Fish and Wildlife Supervisor	B. Draper	As above; retrieve data.
		B. Lewies, District Biologist	B. Draper	Introduce study; identify concerns; retrieve data; review alternative routes; identify route preference.
		E. Kraker, Forest Management Supervisor	B. Draper	As above.

Appendix 2 (Cont'd)

Study Contacts

<u>Government Agency</u>	<u>Location</u>	<u>Contact</u>	<u>Hydro Personnel</u>	<u>Purpose of Contact</u>
4. Ontario Ministry of Transportation		J. Fraser, Lands and Mineral Resources Supervisor	B. Draper	As above.
		A. Yagi, Assistant Biologist	B. Draper	Retrieve data.
		B. Thomas, Field Surveyor	B. Draper	Review field assessment for South St. Ann's Area.
District 4 Office	Burlington	J. McKinnon, Assistant Utilities Coordinator	B. Alstrom	Introduce study; identify concerns; review alternative routes; identify route preference.
III REGIONAL AND MUNICIPAL GOVERNMENTS				
1. Township of West Lincoln	Smithville	D. McCallum, Environmental Coordinator	B. Draper B. Alstrom	Introduce study; identify concerns; clarify status of selected planning instruments and land use policies; clarify technical details of proposed undertaking; clarify details of environmental assessment planning process; convey results of preliminary evaluation of alternative routes; receive comments on alternative routes.
		H.E. Stratford, Clerk	B. Draper B. Alstrom	Introduce study; identify concerns; establish approach for future liaisons with township staff.

Appendix 2 (Cont'd)

Study Contacts

<u>Government Agency</u>	<u>Location</u>	<u>Contact</u>	<u>Hydro Personnel</u>	<u>Purpose of Contact</u>
		E. Griffen, Roads Superintendent	B. Draper B. Alstrom	Introduce study; clarify status of selected planning instruments and land use policies.
		D. Logan, Planning Consultant	B. Draper B. Alstrom	As above.
		L. Nelson	B. Draper B. Alstrom	As above.
2. Regional Municipality of Niagara	Thorold	A. Pierson, Clerk	B. Draper	Inform municipality of study purpose and progress through copies of correspondence to Township of West Lincoln.
IV OTHER AGENCIES				
1. CP Rail	London	W. Steckman, Division Engineer	B. Draper	Clarify historical details related to Silverdale Station, TH&B Railway.
2. University of Guelph, Aboretum	Guelph	Dr. J. Ambrose, Curator	B. Draper	Clarify sensitivity of Viburnum recognitum to transmission line disturbance.
V OWM CONSULTANTS				
1. Ecologistics Limited	Waterloo	J.B. Down, Environmental Planner	B. Draper	Retrieve data re tile drainage, cropping systems and farm types in study area.
2. EDA Collaborative Inc	Toronto	H. Veenhoven, Landscape Architect	B. Draper	Clarify selected aspects of visual impact methodology employed by EDA; retrieve selected literature.

Appendix 2 (Cont'd)

Study Contacts

<u>OWMC Consultant</u>	<u>Location</u>	<u>Contact</u>	<u>Hydro Personnel</u>	<u>Purpose of Contact</u>
3. Gartner Lee Limited	Markham	K. Dance, Senior Biologist	B. Draper S. Hounsell	Clarify status and significance of rare species and sensitive natural areas; report finding of <u>Viburnum recognitum</u> .
		D. Fraser, Biologist	B. Draper S. Hounsell	Clarify status and significance of rare species and sensitive natural areas.
		T. Hilditch, Biologist	B. Draper	Clarify sensitivity of <u>Viburnum recognitum</u> to transmission line disturbance.
4. Historica Research Limited	London	C. Andreag	B. Draper	Clarify status and significance of standing heritage features in study area.
5. The Museum of Indian Archaeology	London	B. Pearce	B. Draper	Clarify status and significance of historic archaeological sites in study area.

APPENDIX 3

DATA SOURCES AND REFERENCES

Appendix 3

Data Sources and References

1. Human Settlement

Consultation with D. McCallum, H. Stratford, E. Griffen, D. Logan, and L. Nelson, Township of West Lincoln; D. Chollak, OWMC; J. McKinnon, Ontario Ministry of Transport and Communications.

Official Plan of the West Lincoln Planning Area, Philips Planning and Engineering Ltd., Burlington, approved by Minister of Housing January 22, 1979.

Official Plan Update No. 8, Final, Miller O'Dell and Paul, Burlington, March 5, 1986.

Comprehensive Zoning By-Law No. 79-14, Township of West Lincoln, adapted by Council March 5, 1979.

By-Law No. 3595-84, A By-Law To Amend By-Law No. 2744-81 Being a By-Law to Restrict and Regulate The Destruction of Trees by Cutting, Burning or Other Means, Regional Municipality of Niagara, passed by Council April 19, 1984.

Affected Landowners of the Proposed Industrial Waste Disposal Facility West Lincoln Township of Gainsborough, Ontario Waste Management Corporation, March 26, 1987.

Site Selection Process Phase 3B: Selection of Candidate Sites, Site Selection-Volume 4: Map Portfolio, Ontario Waste Management Corporation, October 1984.

Site Selection Process Phase 4A: Selection of Preferred Site(s) - Land Use, Leon Kentridge Associates Ltd., Sub-Consultants: Marshall Macklin Monaghan Ltd.; Graydon Rodgers Appraisals Ltd., November 1985.

Site Selection Process Phase 4A: Selection of a Preferred Site(s)-Social Analysis, Prepared by Institute of Environmental Research Inc. November 1985.

Planning Act, R.S.O. 1980, C. 379, as am. S.O. 1981, C. 15.

Field inspection by automobile.

Airphoto interpretation: black and white aerial photographs, Ontario Ministry of Natural Resources, 1:10,000 scale, 1978; black and white semi-controlled airphoto mosaic, Ontario Waste Management Corporation, 1:10,000 scale, 1986.

2. Heritage Resources

Consultation with K. Dandy, I. Kenyon, and J. Fortier, Ontario Ministry of Citizenship and Culture; C. Andreac, Historica Research Ltd.; B. Pearce, Ontario Museum of Indian Archaeology; W. Steckman, CP Rail.

Guidelines on the Man-Made Heritage Component of Environmental Assessments, Ontario Ministry of Culture and Recreation, September 1980.

The Interpretation of Ordinary Landscapes, D.W. Meinig (ed), Oxford University Press, New York, 1979.

Appendix 3 (Cont'd)

Data Sources and References

Heritage Resources (cont'd)

Discovering the Vernacular Landscape,
J.B. Jackson, Yale University Press,
New Haven, 1984.

"Capturing the Cultural Landscape,"
R.Z. Melnick, Landscape Architecture,
January 1981.

A Review of Archaeological Resources
As They Effect the Facilities
Development Process-Ontario Waste
Management Corporation, Submitted
to Gartner Lee Associates by The
Museum of Indian Archaeology
(London), June 1982.

Site Selection Process Phase 3B:
Selection of Candidate Sites-Heritage
Resources, Submitted to Gartner Lee
Associates Ltd. by The Museum of
Indian Archaeology (London),
November 1984.

Site Selection Process Phase 4A:
Selection of a Preferred
Site(s)-Archaeology, A Report
Prepared for OWMC by The Museum
of Indian Archaeology (London),
November 1985.

Site Selection Process Phase 4A:
Selection of a Preferred Site(s)-Social
Analysis Appendices,
Volume 2-Heritage Assessment,
Prepared by Historica Research Ltd.,
December 1985.

Prehistoric Archaeological Site
Potential Study, Supply to Ontario
Waste Management Corporation,
J. Peters, Land Use and Environmental
Planning Department, Ontario Hydro,
Toronto, May 1987.

A Historical Railway Atlas of
Southwestern Ontario, C.A. Andreae,
London, Ontario, September 1972.

Steam in Niagara, A. Panko, Niagara
Rail Publications, Fonthill, Ontario,
1983.

In the Shadow of Giants, N.S. Helm,
Boston Mills Press, Cheltenham,
Ontario, 1978.

The Board of Transport Commissioners
for Canada, Order No. 74957, Ottawa,
Ontario, August 2, 1950.

Illustrated Historical Atlas of the
Countries of Lincoln and Welland,
Compiled Drawn and Published from
Personal Examinations and Surveys by
H.R. Page, Toronto, 1876.

Tremaine's Map of the Countries of
Lincoln and Welland, Canada West,
1862, Scale 1" = 50 chains.

Niagara Sheet No. 3, Department of
Militia and Defence, Ottawa, 1907,
Scale 1:63,360.

Niagara Sheet No. 3, Department of
Militia and Defence, Ottawa, 1908,
Scale 1:63,360.

Niagara Sheet No. 3, Department of
Militia and Defence, Ottawa, 1915,
Scale 1:63,360.

Niagara Sheet No. 3, Department of
Militia and Defence, Ottawa, 1930,
Scale 1:63,360.

Niagara Sheet 30m/3, Department of
Militia and Defence, Ottawa, 1936,
Scale 1:63,360.

Appendix 3 (Cont'd)

Data Sources and References

Heritage Resources (cont'd)

Niagara Sheet 30m/3 West Half, Department of Mines and Technical Surveys, Ottawa, 1955, Scale 1:50,000.

Niagara Sheet 30m/3W, Department of National Defence, Ottawa, 1968, Scale 1:50,000.

Niagara Sheet 30m/3 and 30m/6, Department of Energy Mines and Resources, Ottawa, 1979, Scale 1:50,000.

Field inspection by automobile.

Airphoto interpretation: black and white aerial photographs, Ontario Ministry of Natural Resources, 1:10,000 scale, 1978; black and white semi-controlled airphoto mosaic, Ontario Waste Management Corporation, 1:10,000 scale, 1986.

3. Visual Resources

Consultation with H. Veenhoven, EDA Collaborative Inc., Toronto.

Visual Impact of High Voltage Transmission Facilities in Northern Idaho and Northwestern Montana, Jones and Jones, Seattle, Washington, July 9, 1976.

Measuring the Visibility of High Voltage Transmission Facilities in the Pacific Northwest, Jones and Jones, Seattle Washington, November 30, 1976.

The Measure of Man, Human Factors in Design, Revised and Expanded 2nd Edition, Henry Dreyfuss, 1986.

Visual Values for the Highway User, An Engineer Workbook, Peter L. Hornbeck and Garland A. Okerlund Jr., US Government Printing Office, Stock Number 050-0001-00073-3.

Site Selection Process Phase 4A: Selection of A Preferred Site(s)-Social Analysis Appendices, Vol. 3-Visual Impact Assessment, Prepared for The Institute of Environmental Research by E.D.A. Collaborative Inc., January 10, 1986.

Roadside inspection of selected existing transmission facilities.

Roadside inspection of study area.

4. Agricultural Resources

Consultation with C. Holden and R. Valaitis, Ontario Ministry of Agriculture and Food; J.B. Down, Ecologistics Limited, Waterloo.

Site Selection Process-Phase 4A: Selection of a Preferred Site(s)-Agriculture, Prepared for OWMC by Ecologistics Ltd. and Deloitte, Haskins and Sells Associates, September 1985.

Site Selection Process-Phase 4A: Selection of a Preferred Site(s)-Agriculture Appendices, Prepared for OWMC by Ecologistics Ltd. and Deloitte, Haskins and Sells Associates, September 1985.

Site Selection Process-Phase 4A: Selection of Preferred Site(s): Agriculture Technical Map Portfolio, Prepared by Ecologistics Limited and Deloitte, Haskins and Sells Associates, September 1985.

Appendix 3 (Cont'd)

Data Sources and References

Agricultural Resources (cont'd)

Phase 4B: Agricultural Analysis Overview of Existing Conditions-Agriculture, (Draft) Prepared for OWMC by Ecologistics Ltd., February 1987.

Soils of the Township of West Lincoln, Regional Municipality of Niagara, Ontario Institute of Pedology Preliminary Map P-24, Ontario Institute of Pedology, Guelph, Ontario, 1982, Scale 1:25,000.

Revised Agricultural Soil Capabilities for Common Field Crops in the Niagara Region, Publication No. 85-2, Ontario Institute of Pedology, Guelph, 1985.

Soil Survey of Lincoln County, Report No. 34 of the Ontario Soil Survey, Canada Department of Agriculture, Toronto, and, Ontario Department of Agriculture, Ottawa, 1963.

Agricultural Land Use Systems of the Regional Municipality of Niagara, Technical Bulletin 1986-SE, Research Branch, Agriculture Canada, Ottawa, 1986.

Foodland Preservation, A Proposed Policy Statement of the Government of Ontario issued for Public Review, Ontario Ministry of Agriculture and Food, no date.

Field inspection by automobile.

5. Forest Resources

Consultation with E. Kraker, Ontario Ministry of Natural Resources; and, D. Logan, Township of West Lincoln.

Forest Stand Map 431792 S/W, Ontario Ministry of Natural Resources, Scale 1:10,000, 1979.

Forest Stand Map 431792 N/W, Ontario Ministry of Natural Resources, Scale 1:10,000, 1979.

Niagara District Land Use Guidelines, Ontario Ministry of Natural Resources, 1983.

Official Plan Update, No. 8, Final, Township of West Lincoln, Miller O'Dell and Paul, Burlington, Ontario, March 5, 1986.

Site Selection Process Phase 4A: Technical Appendix LF-9C-Existing Biological Conditions, A Report Prepared for OWMC, by Gartner Lee Associates Limited, September 1985.

Site Selection Process Phase 4A: Selection of Preferred Site(s) Biology, A Report Prepared for OWMC, by Gartner Lee Associates Limited, October, 1985.

Air photo interpretation, black and white aerial photographs, Ontario Ministry of Natural Resources, 1:10,000 scale, 1978; black and white semi-controlled airphoto mosaic, Ontario Waste Management Corporation, 1:10,000 scale, 1986.

Field inspection by automobile.

6. Biological Resources

Consultation with L. Barbetti, G. Mulder, B. Lewies, E. Kraker, J. Fraser, A. Yagi, and B. Thomas, Ontario Ministry of Natural Resources; D. Logan, Township of West Lincoln; K. Dance, D. Fraser and T. Hilditch, Gartner Lee Limited;

Appendix 3 (Cont'd)

Data Sources and References

Biological Resources (cont'd)

K. Pryer and A. Dugal, National Museum of Natural Sciences, Ottawa;
J. Ambrose, University of Guelph;
Transmission Environment
Department, Ontario Hydro, Toronto.

Site Selection Process Phase 3B:
Selection of Candidate Sites-Biology,
Prepared for OWMC by Gartner Lee
Associates Ltd., October 1984.

Site Selection Process Phase 4A:
Selection of a Preferred Site(s)-
Biology, Prepared for OWMC Gartner
Lee Associates Ltd., October 1985.

Site Selection Process Phase 4A:
Technical Appendix LF-9C-Existing
Biological Conditions, Prepared for
OWMC by Gartner Lee Associates
Ltd., September 1985.

Interim Data Summary Phase 4B:
Biology, Prepared by OWMC by
Gartner Lee Associates Ltd.,
August 1986.

Site Assessment, Phase 4B: Biology,
Draft Report, Prepared for OWMC by
Gartner Lee Limited, May 1987.

Regional Municipality of Niagara
Environmentally Sensitive Areas,
edited by R.F. Brady, Department of
Geography, Brock University,
St. Catharines, Ontario,
September 1980.

Natural Areas of the Niagara Region,
Preliminary Survey, Planning and
Development Department, Regional
Municipality of Niagara, Thorold,
Publication No. 72, August 28, 1985.

Life Science Features of the
Haldimand Clay Plain Physiographic
Region, Ian D. MacDonald, Ontario
Ministry of Natural Resources, Parks
and Recreation Section, Central
Region, 1980.

Life Science Areas of Natural and
Scientific Interest in Site District 7-2
West of the Haldimand Clay Plain,
K.M. Lindsay, Ontario Ministry of
Natural Resources, Parks and
Recreational Areas Section, Central
Region, Richmond Hill and
Southwestern Region, London,
September 1984.

Site Assessment Phase 4B: Geology,
Hydrogeology and Geotechnics,
Baseline Conditions Vol. 1, Prepared
for OWMC by Gartner Lee Associates
Ltd. December 1986.

Biological Resource Assessment for
Supply to OWMC Study Area,
S.W. Hounsell, Land Use and
Environmental Planning Department,
Ontario Hydro, Toronto, June 2, 1987.

Life Science Inventory Checklist:
South St. Ann's Slough Forest,
Ian MacDonald, February 15, 1976.

Wetland Data Record, South St. Ann's
Slough Forest, N. Santarella and
B. Thomas, Ministry of Natural
Resources, Niagara District,
July 5, 1985.

Unpublished vegetation map of the
South St. Ann's Slough Forest, and list
of vegetation communities, Ontario
Ministry of Natural Resources,
Niagara District Office, no Scale, no
date.

Appendix 3 (Cont'd)

Data Sources and References

Biological Resources (cont'd)

Guidelines for Wetlands Management in Ontario, Ontario Ministry of Natural Resources, 1984.

Official Plan Amendment No. 8, Township of West Lincoln, Final, Miller O'Dell and Paul, Burlington, March 5, 1986.

Policy for the Management of Fish Habitat, Department of Fisheries and Oceans, Ottawa, October 1986.

Niagara District Aerial Deer Survey Unit 89B, R.W. Lewies, District Biologist, Ontario Ministry of Natural Resources, Niagara District, February 1982.

1985 Deer Survey, Niagara District, Flight Log Index, Ontario Ministry of Natural Resources, Niagara District, no date.

The Effects of High Voltage Transmission Lines on Honey Bees, Interim Report, prepared for Electric Power Research Institute, Palo Alto, California, by BIOCONCERN, Chicago Illinois, October 1978.

Annotated Checklist of the Birds of Ontario, R.D. James et al, Royal Ontario Museum, Toronto, 1976.

The Rare Breeding Birds of Ontario, University of Waterloo Biology Series Number Twenty-four, Paul F.J. Eagles and John D. McCauley, University of Waterloo, 1982.

Handbook of Canadian Mammals, Volume 1, Marsupials and Insectivores, C.G van Zyll de Jong, National Museum of Natural Sciences, Ottawa, 1983.

Flora of the Niagara Frontier Region, Second Supplement and Checklist, Bulletin of the Buffalo Society of Natural Sciences, Volume 16 (Suppl.2), by Richard H. Zander and Gary J. Pierce, 1979.

The Vascular Plants of Haldimand-Norfolk, by D.A. Sutherland, in The Natural Areas Inventory of the Regional Municipality of Haldimand-Norfolk, Volume II: Annotated Checklists, Norfolk Field Naturalists, Simcoe, Ontario, May 1987.

Viburnum recognitum, C.J. Keddy, Atlas of the Rare Vascular Plants of Ontario, National Museum of Natural Sciences, Ottawa, 1984.

Ontario Lists of Rare, Threatened, Endangered, Extirpated and Extinct Species, Non-Game Program, Ontario Ministry of Natural Resources, Toronto, May 1987.

The Endangered Species Act, R.S.O. 1980, C. 138.

R.R.O. 1980, Reg. 287.

O. Reg. 153/81.

O. Reg. 252/87.

Roadside field inspection.

Airphoto interpretation: black and white aerial photographs, Ontario Ministry of Natural Resources, 1:10,000 scale, 1978; black and white semi-controlled airphoto mosaic, Ontario Waste Management Corporation, 1:10,000 scale, 1986.

APPENDIX 4

SUMMARY OF POTENTIAL IMPACTS, MITIGATION
MEASURES AND NET EFFECTS FOR RECOMMENDED ROUTE BFGK

Appendix 4

Summary of Potential Impacts, Mitigation Measures and Net Effects for Recommended Route B-F-G-K

Environmental Situation	Potential Impact(s)	Mitigation Measures	Net Effect(s)
residence within 180 m of transmission line	installation of transmission line on east side of road; retention of rural distribution line on west side of road wood poles, conductor and storm guys visible from 15 residences and yards roadside trees and ornamental plantings 4.6 m at maturity removed from right of way degree of visual change experienced by residents will vary depending on orientation, extent and content of principal views; the location and proximity of the wood poles; and, the degree of right of way clearing required on individual properties	remove and bury rural distribution and service lines thicken existing tree screens, outside the right of way, at sensitive locations plant replacement trees and shrubs elsewhere on the affected property select pole locations that accommodate owner concerns wherever possible	minor change in visual surroundings of 12 residences moderate change in visual surroundings of 3 residences

Appendix 4 (Cont'd)

Summary of Potential Impacts, Mitigation Measures and Net Effects for Recommended Route B-F-C-K

Environmental Situation	Potential Impact(s)	Mitigation Measures	Net Effect(s)
residence within 180 m of line taps and disconnect switches	tap and switch structures, conductor and fencing visible from one residence and two yards degree of visual change experienced by residents will vary depending on orientation, extent and content of principal views; and, the degree of vegetation screening present	thicken existing tree screens, outside the right of way, at sensitive locations	minor change in the visual surroundings of one residence moderate change in the visual surroundings of one residence
land with high prehistoric archaeological potential	construction and maintenance activities may disturb or destroy archaeological resources	conduct archaeological survey prior to construction confine construction and maintenance activities to previously disturbed areas protect sites during construction and maintenance of transmission line and of line taps, line switches excavate sites that cannot be protected or avoided	minimal to moderate depending upon quality of the site, the significance of the resource, and the degree to which the resource is degraded by field activities

Summary of Potential Impacts, Mitigation Measures and Net Effects for Recommended Route B-F-G-K

Environmental Situation	Potential Impact(s)	Mitigation Measures	Net Effect(s)
historic archaeological sites	construction and maintenance activities may disturb or destroy archaeological resources on 3 sites	conduct archaeological survey prior to construction confine construction and maintenance activities to previously disturbed areas protect sites during transmission line construction and maintenance excavate sites that cannot be protected or avoided none required	minimal to minor depending upon quality of the site, the significance of the resource, and the degree to which the resource is degraded by field activities
building of heritage interest	existing rural distribution line, storm guy and service line in front of one residence removed larger scale wood pole transmission line installed on other side of road no right of way clearing required in general vicinity of residence views to transmission line partially screened by existing vegetation and railway embankment		minor net change in visual surroundings of one house; positive change in immediate surroundings offset by larger scale of transmission facilities installed across the road

Appendix 4 (Cont'd)

Summary of Potential Impacts, Mitigation Measures and Net Effects for Recommended Route B-F -G-K

Environmental Situation	Potential Impact(s)	Mitigation Measures	Net Effect(s)
building of minimal heritage interest	existing rural distribution, line and service line in front of one residence removed	none required	minor net change in visual surroundings of one house; positive change in immediate surroundings offset by larger scale of transmission facilities installed across the road
	larger scale wood pole transmission line installed on other side of road		
	limited right of way clearing required in general vicinity of residence		
	views to transmission line partially screened by existing vegetation		
rural landscapes	existing rural distribution line, storm guys, and service line to one farmstead removed	none required	minor net change in landscape character and in visual surroundings of one residence
	larger scale wood pole transmission line installed at edge of road allowance in flat, open countryside		
	limited number of widely spaced roadside trees removed		

Appendix 4 (Cont'd)

Summary of Potential Impacts, Mitigation Measures and Net Effects for Recommended Route B-F-G-K

Environmental Situation	Potential Impact(s)	Mitigation Measures	Net Effect(s)
rural residential landscapes	existing rural distribution line, storm guys and service lines to individual residences removed	thicken existing tree screens, outside the right of way, at sensitive locations	minor change in landscape character and in visual surroundings of 8 residences
	larger scale wood pole transmission line installed at edge of road allowance in close proximity to eleven residences in a rural setting	plant replacement trees and shrubs elsewhere on affected properties	moderate change in landscape character and visual surroundings of 3 residences
	roadside trees and ornamental plantings removed from edge of four properties	select pole locations that accommodate residents' concerns wherever feasible	
transitional landscapes	views to transmission line from most residences are partially screened by existing vegetation		
	existing rural distribution line removed	none required	minor change in landscape character and visual surroundings of two residences
	larger wood pole transmission line installed at edge of road allowance in flat, open countryside that will be transformed visually by the presence of the OWMC facility		

Appendix 4 (Cont'd)

Summary of Potential Impacts, Mitigation Measures and Net Effects for Recommended Route B-F-C-K

Environmental Situation	Potential Impact(s)	Mitigation Measures	Net Effect(s)
transitional landscapes (continued)	views to transmission line from two residences partially screened by existing vegetation		
farmland with Class 2, 3 soil capability for agriculture	land required for line taps and disconnect switches removed from production standing crops may be removed at work sites during construction of line taps and disconnect switches soils may be compacted, rutted mixed and eroded during construction of line taps and disconnect switches right of way for transmission line overhangs edge of farm fields guy anchors for transmission line may be located at edge of farm fields in selected locations	schedule construction activities to minimize crop damage and soil disturbance limit width of access roads and work areas construct temporary gravel access roads, or, use vehicles and equipment with low bearing pressure, if required apply appropriate measures to restore productivity of disturbed soils locate guy anchors for transmission line in road allowance wherever possible construct and maintain transmission line from Silverdale Road to avoid disturbance to adjacent farm land and farm operations	minor: 0.6 ha of Class 3 farmland removed from production for line taps and disconnect switches; temporary disturbance to two farm operations during con- struction of line taps and disconnect switches; temporary reduction in soil productivity at construction sites for line taps and disconnect switches; minor interference with movement of farm equipment near guy anchors for transmission line

Appendix 4 (Cont'd)

Summary of Potential Impacts, Mitigation Measures and Net Effects for Recommended Route B-F -G-K

Environmental Situation	Potential Impact(s)	Mitigation Measures	Net Effect(s)
Woodland Improvement Act Plantation	scattered young pine and spruce trees removed from edge of poorly regenerating plantation (± 10 years old)	transplant young trees to undisturbed portion of plantation	minor: growth rate of young trees downwind of maturing windscreen may be depressed temporarily
	portion of locust windbreak removed from edge of plantation	plant windscreen of compatible vegetation at edge of right of way to replace affected segment	
intermittent stream with fishery management potential	banks and beds of two streams may be disturbed during construction of transmission facilities	schedule construction activities to avoid spawning runs and high water conditions	negligible effect on fishery management potential of two intermittent streams
	quality of fish habitat may be reduced due to effects of erosion and sedimentation	install sediment traps downstream of work sites during construction restore stream bed to original profile and cover affected area with gravel stabilize stream banks and plant cover crops to control erosion	

APPENDIX 5

GLOSSARY

Appendix 5

Glossary

Adjacent - abutting.

Area of High Prehistoric Archaeological Potential - an area of land in which the probability of discovering evidence of occupation or use of the study area by aboriginal peoples (circa 9000 BC to circa 1500-1550) is high. In the context of this study, any land within 200 m of a watercourse portrayed on NTS maps at 1:25,000 or 1:50,000 scale.

Buildings of Heritage Interest - in the context of this study, selected residential, commercial and institutional buildings that were built prior to 1915 and remain standing today. The buildings have been rated as having 'significant heritage interest', 'heritage interest', or 'minimal heritage interest' according to criteria specified in Site Selection Process Phase 4A: Section of a Preferred Site(s) - Social Analysis, Appendix Volume 2, Heritage Assessment, Historica Research Limited, December 1985, pp 65-70. Buildings designated as having 'potential heritage interest' were built prior to circa 1915 but have not been assessed in relation to Historica Research's criteria.

Class 2, 3 Soil Capability for Agriculture, Intensive Land Use - in the context of this study, cleared land that has been rated Class 2 or Class 3 capability for growing common field crops by the Ontario Institute of Pedology, and, is either presently farmed under a corn-wheat or mixed cropping system as defined by Agriculture Canada, or, was planted in corn or market vegetables in 1986 and 1987.

Class 2, 3 Soil Capability for Agriculture, Moderate Intensity Land Use - in the context of this study, cleared land that has been rated Class 2 or Class 3 capability for growing common field crops by the Ontario Institute of Pedology, and, is either presently farmed under a hay cropping system as defined by Agriculture Canada, or, was planted in hay in 1986 and 1987.

Class 2, 3 Soil Capability for Agriculture, Low Intensity Land Use - in the context of this study, cleared land that has been rated Class 2 or Class 3 capability for common field crops by the Ontario Institute of Pedology, and, is either presently farmed under a pasture cropping system as defined by Agriculture Canada, or, has been classified by Agriculture Canada as rural residential land.

Class 2, 3 Soil Capability for Agriculture, Idle Land Use - in the context of this study, cleared land that has been rated Class 2 or Class 3 capability for common field crops by the Ontario Institute of Pedology, and, has been classified as idle land by Agriculture Canada or by Ecologistics Limited.

Class II Wetlands - in the context of this study, swamps that have been designated as Class II wetlands by the Ontario Ministry of Natural Resources and thereby considered to be of provincial significance.

Circuit - a set of conductors (two for a single phase system, three for a three phase system), which are insulated from each other and through which electric current is intended to flow.

Appendix 5 (Cont'd)

Glossary

Compatible Vegetation - Vegetation whose natural characteristics and/or location are such that it will not compromise Ontario Hydro standards of safety, reliability, environmental protection, or cost, and, requires no maintenance.

Deer Wintering Area - in the context of this study, a large woodlot (≥100 ha) in which deer temporarily congregate during harsh winters.

Directly Affected Property - a property on which the transmission right of way, line taps or disconnect switches will be located in whole or in part.

Disconnect Switch - in the context of this study, a piece of equipment that is used to manually switch power system components in or out of service.

Distribution Line - the overhead or underground facilities, at voltages as high as 44 kV, for transporting power from a distribution station or a regional supply centre to the customer's local transformer.

Distribution Station (DS) - a group of electrical components which receive electrical power at one voltage (115 kV or less) and transform it to a lower voltage suitable for distributing that power to local customers.

Environment - as defined in the Environmental Assessment Act, 1975, means:

- i) air, land, water
- ii) plant and animal life, including man

iii) the social, economic and cultural conditions that influence the life of man or a community

iv) any building, structure, machine other device or thing made by man

v) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from the activities of man, or

vi) any part of combination of the foregoing and the inter-relationships between any two or more of them.

Environmental Constraint Map - a map which displays areas of differing sensitivity to the effects of transmission line construction, operation and maintenance.

Environmental Effect - a change in the present or future environment that is expected to occur as the direct or indirect result of carrying out an activity.

Environmental Situation - an aspect of the environment that may be affected adversely by the construction, operation or maintenance of transmission facilities.

Environmentally Sensitive Area - in the context of this study, an area designated by the Regional Municipality of Niagara and considered to be of regional significance.

Factor - a class of related engineering or environmental concerns.

Appendix 5 (Cont'd)

Glossary

Heritage Farm Landscapes - in the context of this study, a group of buildings (farmhouse, barns, sheds and other structures) and related landscaping (shade trees, lawn, barnyard, windbreaks, orchard, etc) that evoke images of a 19th century family farming operation.

High Potential Forest Resources - in the context of this study, woodlots ≥ 2 ha in size that have been classified by the Township of West Lincoln as high potential forest resources in view of their capability of providing significant economic, social and environmental contributions to the Municipality.

Historic Archaeological Sites - in the context of this study, the location of a transportation facility or residential, commercial, industrial or institutional building that was constructed in the study area during the period circa 1830-1915 and is no longer standing today.

In-service Date - the date a facility is declared available for commercial operation.

Intermittent Streams with Fishery Management Potential - in the context of this study, a stream that flows during some periods of the year and has the potential to be managed as a warm water sport fishery.

Kilo - the prefix which indicates the quantity or magnitude of an element in thousands, as in kilometre, kilovolt, kilowatt, kilowatthour.

Line Tap - the structures and equipment required to connect a new transmission line to an existing line of similar voltage, for the purpose of energizing the new line.

Link - a segment of a route or route network.

Load - the amount of power or energy used by customers. It is measured in watts or megawatts.

Losses - the power dissipated by the system itself because of the inherent resistance of transmission lines, transformers, etc., to the flow of electrical energy.

Magnitude (of a change) - in the content of this study, the size or severity of a change in the present or future environment.

Mitigation Measure - an action that may be undertaken to prevent, minimize, reverse, or compensate for, an undesired change in the present or future environment.

Net Environmental Effect - a change in the present or future environment that is expected to occur following the application of suitable mitigation measures.

Other Private Forest Stands - in the context of this study, forest stands that are ≥ 2 ha in size, and, are located on sites rated as Class X by the Ontario Ministry of Natural Resources, and, have not been classified as high potential forest resources by the Township of West Lincoln.

Appendix 5 (Cont'd)

Glossary

Potential Impact - a change in the present or future environment that may occur as the direct or indirect result of carrying out an activity if appropriate mitigation measures are not applied.

Power - the rate of doing work, or, in an electrical network, the rate at which electrical energy is being supplied.

Quality (of a resource) - the degree to which a particular aspect of the environment possesses a set of desired characteristics.

Rare Plant Species - in the context of this study, a plant species that has been designated as rare in Ontario or in Canada by the Natural Museum of Natural Sciences; or, has been designated as rare in the Niagara Frontier Region by Zander and Pierce.

Right of Way - the area of land required by Ontario Hydro to construct, operate and maintain the transmission facilities for which approval is being requested.

Route - a pathway within which the right of way, subsequent to government approval, will be located.

Rural Landscape - a landscape characterized by the presence of farm fields, hedgerows, woodlands, small streams, specialized agricultural buildings, dispersed residential development and infrequent occurrences of non-agricultural development. The character of individual landscapes may vary depending upon the state of one or more of the following elements: size of farm field; type of agricultural

crop grown; presence or absence of hedgerows; location, size, shape, orientation and number of woodlots present; presence or absence of streams; type and extent of streambank vegetation; stream valley morphology; type, size, location and number of specialized farm buildings; age and location of residential buildings; type and degree of non-agricultural development present; degree of topographic relief; and time of year.

Rural Residential Landscape - in the context of this study, a strip of residential development and surrounding countryside situated in a rural landscape. The character of individual landscapes may vary depending upon the age, location, orientation and density of the buildings; the presence or absence of farm residences and farm buildings within the landscape; the age and density of the roadside vegetation; and the age and type of landscaping surrounding each residence.

Significance (of a resource) - in the context of this study, the importance of a resource in a national, provincial, regional or local context.

Slough - a shallow wet depression in otherwise level terrain.

Transformer - an electro-magnetic device for changing alternating-current electricity to a higher or lower voltage.

Transformer Station (TS) - a group of electrical components or elements arranged to transfer power from one voltage level to another; to terminate transmission circuits at various

Appendix 5 (Cont'd)

Glossary

voltage levels; and, to provide for the interchange or redistribution of power among transmission circuits at each voltage level.

Transmission Line - the overhead facilities (typically composed of a skywire, conductors, insulators and supporting towers) used to convey electric energy from one point to another at voltages of 115 kV or higher.

Transitional Landscape - in the context of this study, a rural landscape that is in close proximity to Site LF-9C, and, that will be modified to some degree by the construction and operation of the proposed waste treatment facility.

Volt - a unit of electrical pressure which tends to cause the flow of electrical current.

Watt - a unit of electrical power which represents the power used when one ampere flows through a circuit with a pressure of one volt.

Woodlands Improvement Act (WIA) Plantation - a forest plantation that has been established and managed according to the requirements and regulations of the Woodlands Improvement Act, RSO 1970.

Worst Case Location - the location where the adverse effects of transmission line construction, operation, and maintenance, on a particular land use activity or environmental feature, are expected to be the greatest.